

MANCHESTER IRON WORKS

ARCHITECTURAL, STRUCTURAL, ORNAMENTAL
IRON AND STEEL

CATALOG "A"

SAINT LOUIS
U. S. A.

MANCHESTER IRON WORKS, ST. LOUIS

TO OUR PATRONS

In preparing this catalogue it has been our aim to give an outline of the products we manufacture, or carry in stock, and can furnish promptly. However, we had to confine ourselves to a small number of designs and constructions, and we do not limit our production to the designs submitted, and will gladly work up any designs you may have, or prefer.

Send us your plans and specifications and we shall be pleased to quote you a very low price on all iron or steel required.

Our prices are at all times as low as is consistent with good workmanship and the market price of material.

All prices are subject to change without notice, and catalogue quotations are not an agreement to furnish material, unless the order is accepted by us.

St. Louis, being an important railroad center, freight rates to and from St. Louis are much lower than at many other places, resulting in considerable saving to our customers.

Our ambition shall always be to give entire satisfaction, both in quality and prompt service.

Thanking our many friends for past favors, we sincerely hope that these illustrations will result in mutual benefit.

Cordially yours,

St. Louis, March, 1916

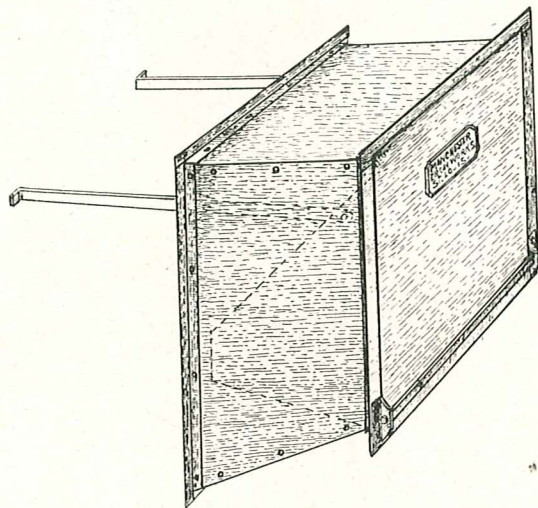
MANCHESTER IRON WORKS.

MANCHESTER IRON WORKS, ST. LOUIS

GENERAL INSTRUCTIONS TO AVOID DELAYS

1. When ordering, give full description of what you want, stating catalogue number and all sizes required; enclose sketch, if possible, but do not cut up the catalogue, as it is unnecessary.
2. When ordering structural material, state time when you must have same, and order as early as possible, as a little more time is always advantageous, and insures more care in executing your order.
3. Parties having no commercial rating, giving reference to banks or other responsible parties, should enclose letters from such persons, to avoid delay of investigating references.
4. When satisfactory rating is not obtainable, we send sight draft attached to bill of lading on bank at destination for collection.
5. It is our aim to treat all our customers with the utmost courtesy, but we must safeguard our accounts in order to secure low prices to all.
6. When quick shipment is desired, it is not necessary to write for prices, as regular current discounts will be allowed in all cases, whether specially quoted or not.

MANCHESTER IRON WORKS, ST. LOUIS

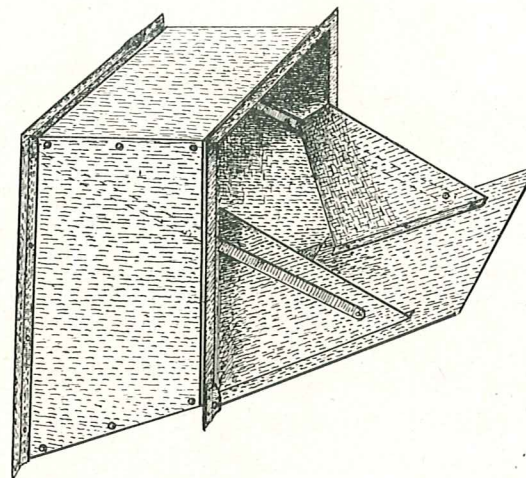


No. 1 (Closed)

No. 1—FULL BOX COAL CHUTE

When coal chute is closed from outside, the arms will automatically lock it.

It is made from heavy steel, and has angle frame inside as well as outside of wall, holding it securely in the wall.



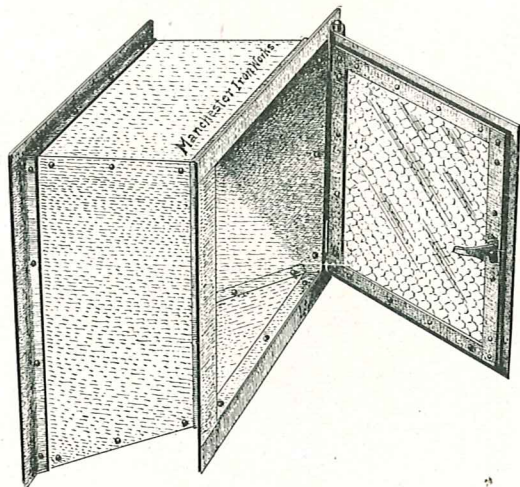
No. 1 (Open)

DOOR OPENED, FORMING HOPPER

Number	Size of Door	Price for 13 in. wall	18-in. wall	21 in. wall
No. 1a.....	20 in. x 20 in.....	\$ 7.80	\$ 8.00	\$ 8.60
No. 1b.....	24 in. x 24 in.....	9.00	9.20	9.80
No. 1c.....	30 in. x 24 in.....	10.00	10.40	11.20
No. 1d.....	30 in. x 30 in.....	11.00	11.60	12.60

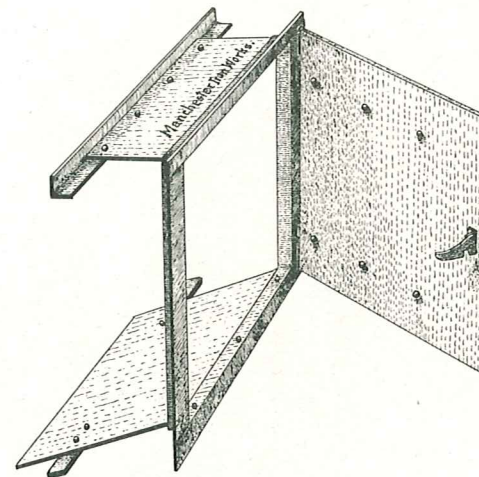
Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 2

No. 2—FULL BOX COAL CHUTE WITH SIDE-HINGED WIRED GLASS DOOR



No. 3

No. 3—COAL DOOR WITH SLANT STEEL BOTTOM AND SHEET STEEL AND ANGLE LINTEL

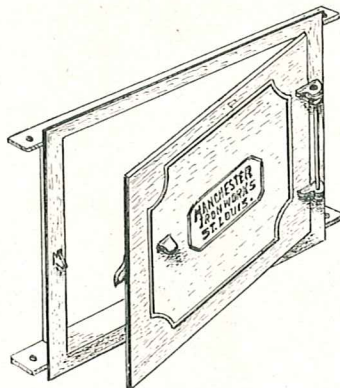
No. 4—SIDE-HINGED STEEL DOOR BOX COAL CHUTE, SAME AS No. 2 WITH DOOR AS No. 3

Number	Size of Door	Price for 13 in. wall	For 18 in. wall	For 21 in. wall
No. 2a.....	20 in. x 20 in.....	\$11.60	\$12.00	\$12.60
No. 2b.....	24 in. x 24 in.....	13.00	13.40	14.00
No. 3a.....	20 in. x 20 in.....	5.80	6.00	6.30
No. 3b.....	24 in. x 24 in.....	7.00	7.30	7.70
No. 4a.....	20 in. x 20 in.....	7.20	7.50	8.00
No. 4b.....	24 in. x 24 in.....	8.20	8.60	9.20

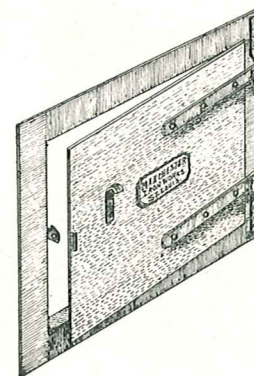
24 in. x 24 in. is the most convenient size of coal doors.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 21



No. 25

CLEANOUT DOORS FOR FLUES AND ASHPITS

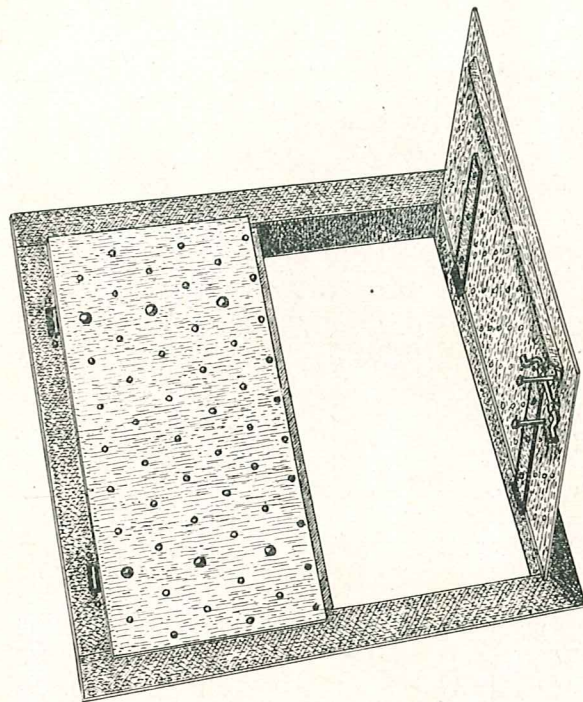
Number	Size of opening	Price each
No. 21	8 in. x 8 in.....	\$1.00
Cast Iron	10 in. x 12 in.....	1.30
Door and Frame	16 in. x 16 in.....	2.50

No. 25	Size of door	Price each
Steel Door and Frame	10 in. x 10 in.....	\$1.40
	12 in. x 12 in.....	1.75
	16 in. x 16 in.....	2.50
	18 in. x 18 in.....	3.25
	20 in. x 20 in.....	4.00

Price includes anchors for fastening frames to wall.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 31

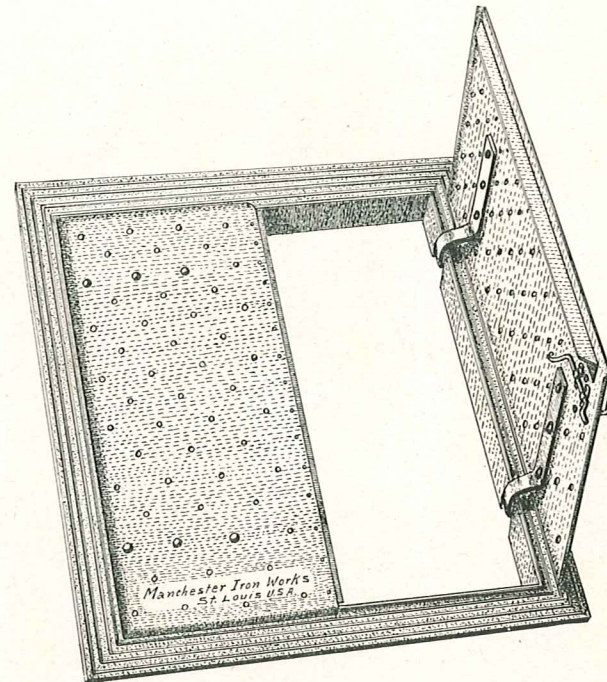
CELLAR DOORS OR SIDEWALK DOORS

No. 31—Steel Doors with steel angle frame, concealed hinges, roughened top, well braced with angles and provided with strong hinges, and slide bolt for locking; a very practical and durable door.

No. 32—Steel Doors with cast iron frame; frame has raised edge around entire opening, and doors are curved over same, making these doors more water-proof.

In ordering, give width of opening first and then length.

We can furnish other sizes when desired.



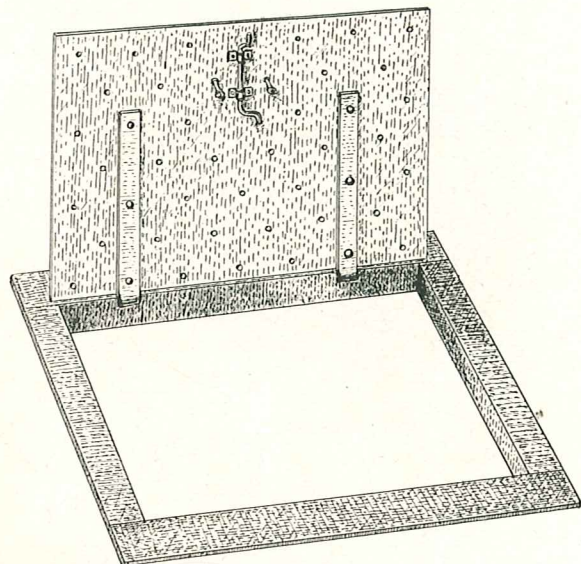
No. 32

Price f. o. b. cars St. Louis.

Number	36 in. x 36 in.	36 in. x 42 in.	36 in. x 48 in.	42 in. x 42 in.	42 in. x 48 in.	48 in. x 48 in.	48 in. x 60 in.
No. 31.....	\$18.00	\$19.00	\$20.00	\$20.50	\$21.50	\$23.00	\$25.00
No. 32.....	20.00	21.00	22.00	23.00	24.50	26.00	30.00

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



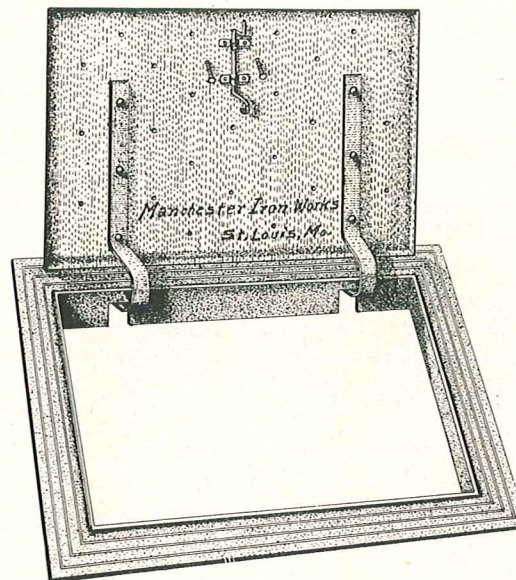
No. 33

COAL DOORS FOR SIDEWALK OR YARD

No. 33—Steel Door with steel angle frame, strong hinges on under side of door, slide bolt for locking, and drop handle. Door is roughened to prevent slipping. A very strong, neat and durable door.

No. 34—Steel Door with cast iron frame, strong hinges, entirely concealed when closed; frame has raised edge at opening, and the door is curved over same, making door more waterproof.

We can furnish other sizes when desired.



No. 34

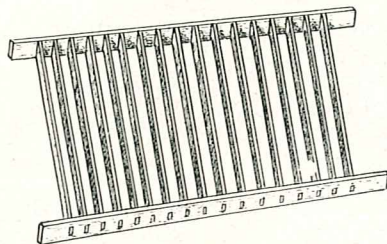
Prices f. o. b. cars St. Louis.

No. 33—24 in. x 24 in.....	\$7.00
30 in. x 24 in.....	8.00
36 in. x 24 in.....	9.00

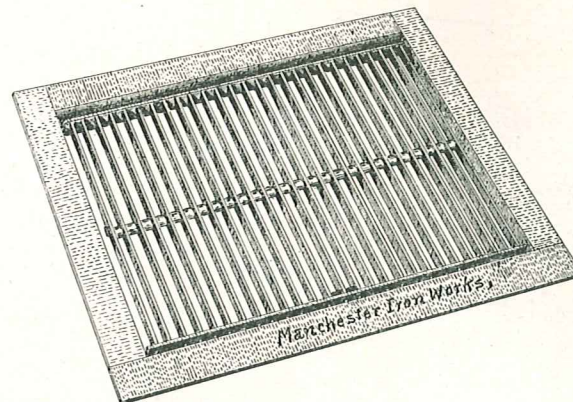
No. 34—24 in. x 24 in.....	\$ 9.00
30 in. x 24 in.....	10.50
36 in. x 24 in.....	12.00

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 35



No. 36

GRATINGS FOR AREAS IN SIDEWALK OR YARD

No. 35—Plain grating without frame, ends of bars project so that same may be secured in concrete or other material.

No. 36—Hinged grating in steel angle frame, with lug for locking from inside. We can furnish any size.

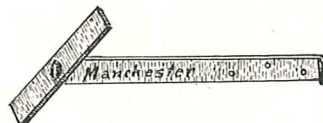
Prices range from 60 cents to \$1.20 per square foot, according to material used, size and number of gratings.

State size and number of gratings wanted, when writing for prices. See paragraph 6, page 2.

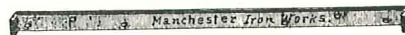
MANCHESTER IRON WORKS, ST. LOUIS



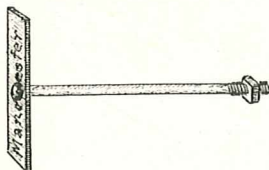
No. 41



No. 42



No. 46



No. 44



No. 47



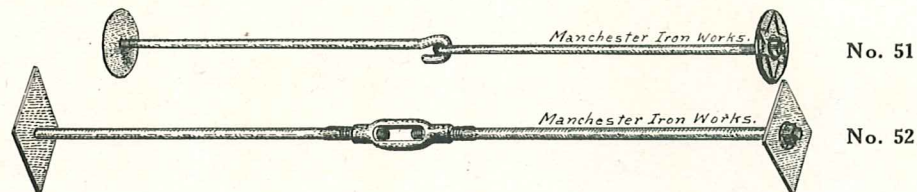
No. 48

ANCHORS

No. 41—Star Joist Anchor, Cast Iron Star, 18 in. steel shank with thread and nut. Price each.....	\$.20
No. 42—Tee Joist Anchor, steel head and 18 in. shank riveted.....	.12
No. 44—Partition Anchor, 7 in. steel head, $\frac{1}{2}$ in. diameter bolt, 12 in. long10
No. 46—Strap Anchor, $1\frac{1}{4}$ in. x $\frac{3}{16}$ in. strap, 20 in. long, hooked ends.....	.09
No. 47—Strap Anchor, $1\frac{1}{4}$ in. x $\frac{3}{16}$ in. strap, 24 in. long, hooked ends.....	.12
No. 48—Wall Plate Anchor a, $\frac{1}{2}$ in. bolt, 18 in. long, 3 in. x 3 in. head.....	.15
b, $\frac{1}{2}$ in. bolt, 24 in. long, 3 in. x 4 in. head.....	.20
c, $\frac{5}{8}$ in. bolt, 24 in. long, 4 in. x 4 in. head.....	.25
d, $\frac{5}{8}$ in. bolt, 30 in. long, 4 in. x 4 in. head.....	.30

When writing for Discounts, state quantity and size wanted.

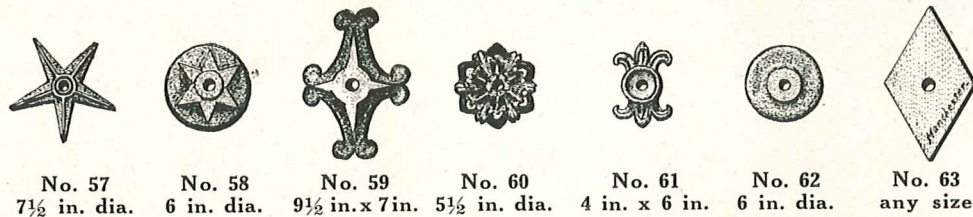
MANCHESTER IRON WORKS, ST. LOUIS



TIE RODS

No. 51—Plain Tie Rods, 12 ft. long in one length; longer rods hooked in about 12 ft. sections.

No. 52—Tie Rods with turnbuckle in center. All our turnbuckle rods are made with upset bolt ends, so that the diameter of the thread is larger than the diameter of the rod, getting equal strength at all parts of the rod.



No. 57
7½ in. dia.

No. 58
6 in. dia.

No. 59
9½ in. x 7 in.

No. 60
5½ in. dia.

No. 61
4 in. x 6 in.

No. 62
6 in. dia.

No. 63
any size

END PLATES FOR TIE RODS OR ANCHORS

We can furnish end plates for any size rod. The following sizes carried in stock:

Nos. 57, 60, 61—for ½ in. and ⅝ in. diameter rod.

Nos. 58, 62—for ⅝ in. and ¾ in. diameter rod.

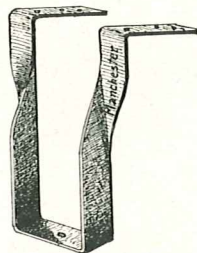
No. 59—for ¾ in. and 7⁄8 in. diameter rod.

No. 63—for ½ in. to 1 in. diameter rod.

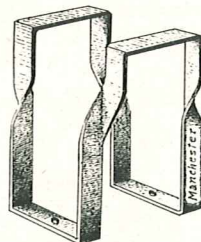
When ordering tie rods, state length between plates, diameter of rod, and style of end plate desired. When end plates are not specified, we send suitable plates.

Prices on application. See paragraph 6, page 2.

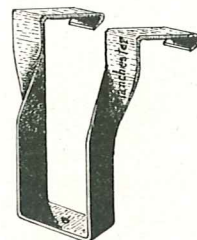
MANCHESTER IRON WORKS, ST. LOUIS



No. 71



No. 72



No. 73

STIRRUPS OR JOIST HANGERS

We furnish hangers for all classes of buildings, residences, stores, warehouses, factories, etc. Stirrups for larger girders are made similar, of heavier material.

Number	Material	Size of joists	Actual size	Price each
No. 71—	2 in. x $\frac{1}{8}$ in.	2 in. x 8 in.	$1\frac{3}{4}$ in. x $7\frac{5}{8}$ in.....	\$.18
	2 in. x $\frac{1}{8}$ in.	2 in. x 10 in.	$1\frac{3}{4}$ in. x $9\frac{5}{8}$ in.....	.19
	2 in. x $\frac{1}{8}$ in.	2 in. x 12 in.	$1\frac{3}{4}$ in. x $11\frac{5}{8}$ in.....	.20
	2 in. x $\frac{3}{16}$ in.	2 in. x 10 in.	$1\frac{3}{4}$ in. x $9\frac{5}{8}$ in.....	.25
	2 in. x $\frac{3}{16}$ in.	2 in. x 12 in.	$1\frac{3}{4}$ in. x $11\frac{5}{8}$ in.....	.27
	2 in. x $\frac{1}{4}$ in.	2 in. x 10 in.	$1\frac{3}{4}$ in. x $9\frac{5}{8}$ in.....	.30
	2 in. x $\frac{1}{4}$ in.	2 in. x 12 in.	$1\frac{3}{4}$ in. x $11\frac{5}{8}$ in.....	.33

Heavier stirrups
prices on application.

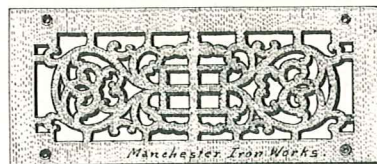
Write for Discounts.

For hangers for double joists, add two cents to list.

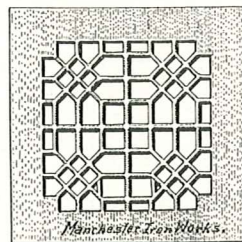
No. 72—Double hanger, twice list of No. 71, plus five cents.

No. 73—for hanging joists to steel beams; add four cents to list of No. 71.

MANCHESTER IRON WORKS, ST. LOUIS



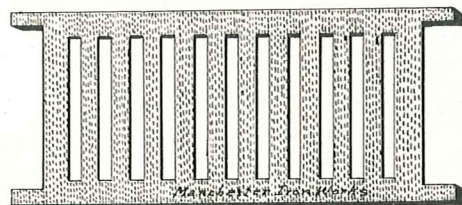
No. 75



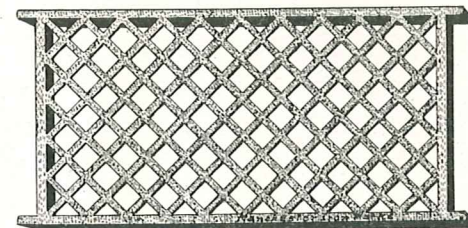
No. 77



No. 76



No. 78



No. 79

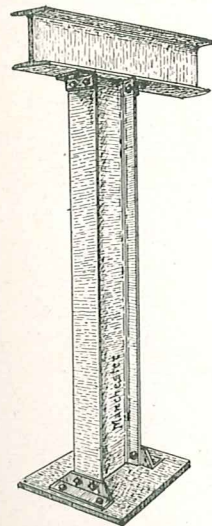
CAST IRON VENT GRATES

For ventilating foundations, space between roof and ceiling joists, space under porches, veranda, etc.

Number	Size	Price
No. 75.....	5 in. x 12 in.....	\$.20
No. 76.....	5 in. x 12 in.....	.20
No. 77.....	8 in. x 8 in.....	.15
No. 78.....	6 in. x 12 in.....	.18
No. 79.....	7 in. x 13 in.....	.24

We can furnish other sizes and other designs within a few days after receiving order. If discounts are not asked for, they will be allowed on invoice, same as if quoted.

MANCHESTER IRON WORKS, ST. LOUIS

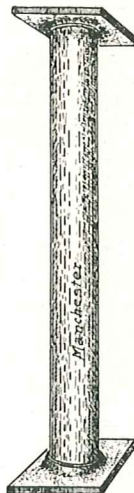


**No. 100 STEEL I
BEAM COLUMN**

showing connection
to foot plate and
girder above.

Girders are punched
to fit column, and
can easily be bolted
in place.

No. 100

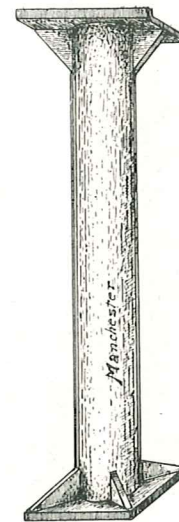


**No. 101 PIPE
COLUMN**

The shaft is stand-
ard pipe, with cast
iron cap and foot
plate shrunk on.

—
For Price List, see
page 14.

No. 101



**No. 105 CAST IRON
COLUMN**

with bracketed cap
and ribbed foot
plate.

—
For Price List, see
page 14.

No. 105

PLAIN COLUMNS

When ordering columns, state kind, size, and width of girder above.

These columns show the three principal means of supporting floor girders, disposing of the old-fashioned timber and costly and clumsy brick pier.

It is advisable to keep foot plates of I beam columns and pipe columns one or two inches above the floor, to prevent any possible corrosion of the shaft. Cast iron columns may be set so that ribbed foot plate is below floor line.

All these columns are used extensively, and have proved far superior to brick or wood in strength, convenience and durability. See comparison of breaking loads, page 63.

The perspective view has been exaggerated, to show detail of cap and foot plate more clearly.

Send us your list or plans and we shall be pleased to quote you interesting prices.

MANCHESTER IRON WORKS, ST. LOUIS

PRICE LIST OF PLAIN COLUMNS

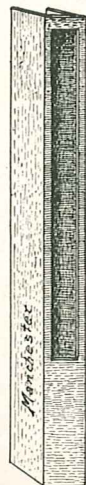
Size of shaft	Size of footplate	Price			
		6 ft. 0 in. long	6 ft. 6 in. long	7 ft. 0 in. long	7 ft. 6 in. long
No. 100—3 in. I Beam Column.....	10 in. x 10 in. x $\frac{1}{2}$ in.....	\$3.10	\$3.25	\$3.40	\$3.55
4 in. I Beam Column.....	10 in. x 10 in. x $\frac{1}{2}$ in.....	3.50	3.70	3.90	4.10
5 in. I Beam Column.....	10 in. x 10 in. x $\frac{1}{2}$ in.....	4.00	4.25	4.50	4.75
6 in. I Beam Column.....	12 in. x 12 in. x $\frac{1}{2}$ in.....	5.20	5.50	5.80	6.10
7 in. I Beam Column.....	12 in. x 12 in. x $\frac{5}{8}$ in.....	6.25	6.60	6.95	7.30
8 in. I Beam Column.....	14 in. x 14 in. x $\frac{3}{4}$ in.....	7.50	7.95	8.40	8.85
No. 101—Pipe Column.					
3 $\frac{1}{2}$ in. diameter.....	7 $\frac{1}{2}$ in. x 7 $\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$3.50	\$3.70	\$3.90	\$4.05
4 in. diameter.....	8 in. x 8 in. x $\frac{1}{2}$ in.....	4.25	4.50	4.75	5.00
4 $\frac{1}{2}$ in. diameter.....	8 in. x 8 in. x $\frac{1}{2}$ in.....	4.70	5.00	5.30	5.60
5 in. diameter.....	9 in. x 9 in. x $\frac{1}{2}$ in.....	5.30	5.65	6.00	6.35
5 $\frac{1}{2}$ in. diameter.....	9 in. x 9 in. x $\frac{1}{2}$ in.....	6.00	6.40	6.80	7.20
No. 105—Cast Iron Column.					
4 in. diameter, $\frac{1}{2}$ in. metal.....	12 in. x 12 in. x $\frac{3}{4}$ in.....	\$ 7.00	\$ 7.45	\$ 7.90	\$ 8.35
5 in. diameter, $\frac{1}{2}$ in. metal.....	12 in. x 12 in. x $\frac{3}{4}$ in.....	7.75	8.30	8.85	9.40
6 in. diameter, $\frac{5}{8}$ in. metal.....	12 in. x 12 in. x 1 in.....	11.40	12.10	12.80	13.50
7 in. diameter, $\frac{3}{4}$ in. metal.....	12 in. x 12 in. x 1 in.....	14.20	15.20	16.20	17.20

For longer columns, continue list in same proportion.

All prices are f. o. b. cars St. Louis. We do not charge drayage; freight only.

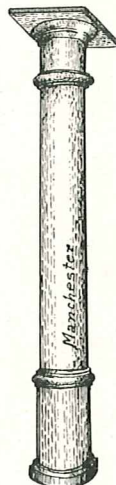
Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



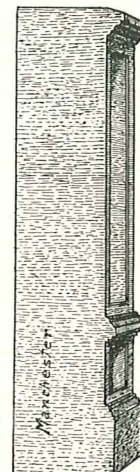
No. 111

No. 111—Cast Iron
Plain Paneled Store
Front Column.



No. 114

No. 114—Cast Iron
Round Column for
Corner Entrance to
Stores.



No. 116

No. 116—Cast Iron
Open Back Box Col-
umn with Moulded
and Paneled Front.

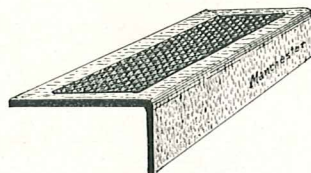
CAST IRON STORE FRONT COLUMNS

Above columns show only the principal difference in shape. We can furnish columns of any other design. We shall be pleased to quote you according to plans and specifications.

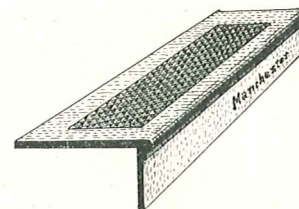
Send us your blue prints for estimate.

Prices of columns on application.

MANCHESTER IRON WORKS, ST. LOUIS



No. 131



No. 132

SILLS

No. 131—Cast Iron Sill with rounded nose.

No. 132—Cast Iron Sill with moulded nosing and scotia.

Cast Iron Sills are scoriated at entrances and plain under show windows, with lug at back for store front.

Where small sill is desired, steel angle is often used in place of cast iron sills.

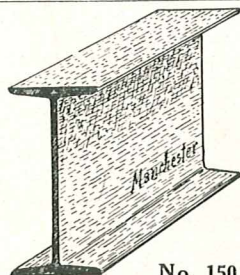
Cast Iron Sill 12 in. wide, of $\frac{5}{8}$ in. metal with 7 in. riser of $\frac{1}{2}$ in. metal. Price per ft.....\$1.40

Steel Angle Sill, 6 in. wide with 6 in. riser of $\frac{3}{8}$ in. metal. Price per ft..... .80

When ordering sills, send sketch of exact location of entrances, show windows, and columns, so that we can properly do all necessary fitting.

Prices quoted are subject to discount.

MANCHESTER IRON WORKS, ST. LOUIS

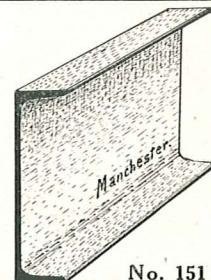


No. 150

STEEL I BEAMS, No. 150, AND CHANNELS, No. 151

carried in stock and cut to any length

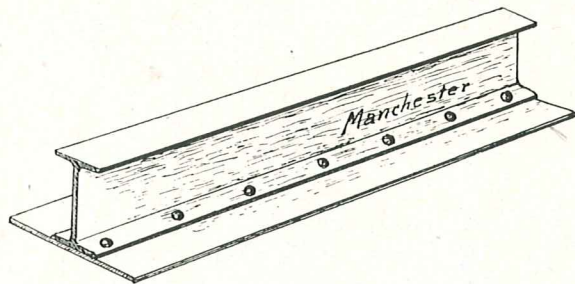
Safe Load of Standard Steel I Beams in pounds, and includes weight of beam when supported at both ends, and load evenly distributed; if load is concentrated at center, allow one-half the table.



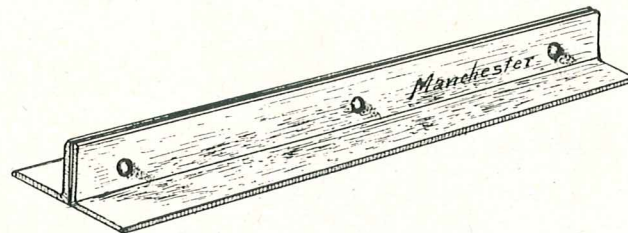
No. 151

Size Weight	Span in ft.	3 in. 5.5	4 in. 7.5	5 in. 9.75	6 in. 12.25	7 in. 15	8 in. 18	9 in. 21	10 in. 25	12 in. 31.5	15 in. 42	18 in. 55	20 in. 65	24 in. 80
	4 ft.	4410	7950	12900	19370	27600	37920							
	5 ft.	3530	6360	10320	15490	22080	30330							
	6 ft.	2940	5300	8600	12910	18400	25280							
	7 ft.	2520	4540	7370	11070	15770	21670							
	8 ft.	2210	3980	6450	9680	13800	18950	25160						
	9 ft.	1960	3530	5730	8610	12270	16850	22370						
	10 ft.	1770	3180	5160	7750	11040	15170	20130	26050	38370	62830	94290	124750	185530
	11 ft.	1600	2890	4690	7040	10040	13790	18300	23680	34880	57120	85720	113410	168660
	12 ft.	1470	2650	4300	6460	9200	12640	16770	21710	31970	52360	78570	103960	154610
	13 ft.	1360	2450	3970	5960	8490	11670	15480	20040	29510	48330	72530	95960	142720
	14 ft.	1260	2270	3680	5530	7890	10830	14380	18610	27400	44880	67350	89110	132520
	15 ft.	1180	2120	3440	5160	7360	10110	13420	17360	25580	41880	62860	83170	123690
	16 ft.	1100	1990	3220	4840	6900	9480	12580	16280	23980	39270	58930	77970	115960
	17 ft.	1040	1870	3030	4560	6490	8920	11840	15320	22570	36960	55460	73380	109140
	18 ft.	980	1770	2870	4300	6130	8430	11180	14470	21310	34900	52380	69310	103070
	19 ft.	930	1670	2720	4080	5810	7980	10590	13710	20190	33070	49630	65660	97650
	20 ft.	880	1590	2580	3870	5520	7580	10064	13020	19180	31410	47140	62370	92770
	21 ft.	840	1510	2460	3690	5260	7220	9590	12400	18270	29920	44900	59400	88350
	22 ft.			2340	3520	5020	6890	9150	11840	17440	28560	42860	56700	84330
	23 ft.			2240	3370	4800	6590	8750	11320	16680	27320	40990	54240	80670
	24 ft.			2150	3230	4600	6320	8390	10850	15990	26180	39290	51980	77330
	25 ft.			2060	3100	4420	6070	8050	10420	15350	25130	37720	49900	74210

MANCHESTER IRON WORKS, ST. LOUIS



No. 152



No. 153

STEEL LINTELS

No. 152—Steel I Beam with plate riveted to flange. Usual thickness of plates is $\frac{1}{4}$ in., but we can furnish heavier plates.

Single steel I beam lintels may safely be used to carry 13 in. wall over openings two feet wider than one foot to each inch in height of beam.

For example, use 7 in. I beam for 9 ft. opening.

When floor girders, chimney breasts or other concentrated loads rest on lintel, the beam must be larger.

See table of safe loads on page 17.

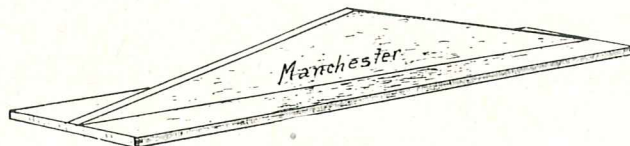
No. 153—Two Steel Angles riveted or bolted.

Double angles are frequently used in place of cast lintels, as they are lighter, more easily set, and can be depended on to carry their full load.

See table of safe loads, page 62.

See weights of material, page 63.

MANCHESTER IRON WORKS, ST. LOUIS



No. 155

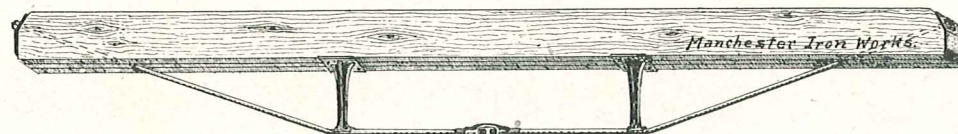
CAST IRON LINTELS

Width	Height of rib	Thickness of metal	Weight per ft.	Price per 100 lbs.
8 in.	6 in.	$\frac{1}{2}$ in.	18 lbs.	\$3.15
8 in.	8 in.	$\frac{5}{8}$ in.	24 lbs.	3.00
8 in.	10 in.	$\frac{3}{4}$ in.	30 lbs.	2.95
9 in.	6 in.	$\frac{1}{2}$ in.	20 lbs.	3.15
9 in.	8 in.	$\frac{5}{8}$ in.	26 lbs.	3.00
9 in.	10 in.	$\frac{3}{4}$ in.	32 lbs.	2.90
11 in.	6 in.	$\frac{1}{2}$ in.	22 lbs.	3.10
11 in.	8 in.	$\frac{5}{8}$ in.	32 lbs.	2.95
11 in.	8 in.	$\frac{3}{4}$ in.	36 lbs.	2.90
11 in.	10 in.	$\frac{3}{4}$ in.	38 lbs.	2.90
12 in.	6 in.	$\frac{1}{2}$ in.	23 lbs.	3.10
12 in.	6 in.	$\frac{5}{8}$ in.	30 lbs.	2.95
12 in.	8 in.	$\frac{5}{8}$ in.	32 lbs.	2.95
12 in.	8 in.	$\frac{3}{4}$ in.	37 lbs.	2.90
12 in.	10 in.	$\frac{3}{4}$ in.	40 lbs.	2.90
12 in.	10 in.	$\frac{7}{8}$ in.	48 lbs.	2.85

Prices f. o. b. cars
St. Louis.

Write for Discounts.

MANCHESTER IRON WORKS, ST. LOUIS



No. 157

HOG CHAINS OR TRUSS RODS

A very economical method of reinforcing girders.

We furnish these rods with upset bolt ends, so as to get the full strength of the rod; cast iron struts and bent steel end plates. The struts are made for one, two or three rods and end plates to match. Usual depth of struts is 24 in., but we can furnish other sizes.

Diameter of rod	Number of rods	Price for Span of 30 ft. or less	Each additional ft.
1 in.	Single	\$11.50	\$.15
1 in.	Double	17.50	.25
1 in.	Triple	25.00	.40
1¼ in.	Single	14.00	.25
1¼ in.	Double	22.50	.40
1¼ in.	Triple	33.00	.65
1½ in.	Single	20.50	.40
1½ in.	Double	34.00	.70
1½ in.	Triple	49.00	1.05

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 160



No. 165



No. 166

CAST IRON BEARING PLATES AND FOOTPLATES

No. 160—Plain Cast Iron Plate for wall end of I beam or wood girder.

No. 165—Plain Cast Iron Dowel Plate for wood post or girder.

No. 166—Beveled Cast Iron Doweled Footplate for wood post.

For iron columns we furnish cross lugs on top of plate, instead of pin.

Weights for Nos. 160 and 165

8x 8x $\frac{1}{2}$	8 lbs.
8x12x $\frac{1}{2}$	12 lbs.
10x10x $\frac{1}{2}$	13 lbs.
12x12x $\frac{1}{2}$	18 lbs.
8x12x $\frac{5}{8}$	15 lbs.
12x12x $\frac{5}{8}$	23 lbs.
12x12x $\frac{3}{4}$	27 lbs.
12x16x $\frac{3}{4}$	36 lbs.
14x14x $\frac{3}{4}$	37 lbs.
16x16x $\frac{3}{4}$	48 lbs.
16x16x1.....	64 lbs.

Weights for No. 166

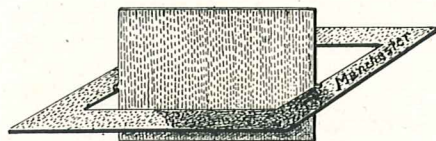
12x12x1 in. to $\frac{1}{2}$ in.....	28 lbs.
14x14x1 $\frac{1}{4}$ in. to $\frac{3}{4}$ in.....	50 lbs.
16x16x1 $\frac{1}{2}$ in. to 1 in.....	83 lbs.
18x18x1 $\frac{1}{2}$ in. to 1 in.....	110 lbs.

Price f. o. b. cars St. Louis

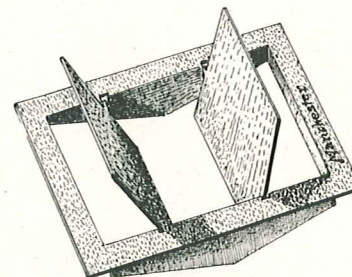
$\frac{1}{2}$ in. plates.....	\$3.00 per 100 lbs.
$\frac{5}{8}$ in. plates.....	2.95 per 100 lbs.
$\frac{3}{4}$ in. plates.....	2.85 per 100 lbs.
1 in. and heavier.....	2.80 per 100 lbs.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 172

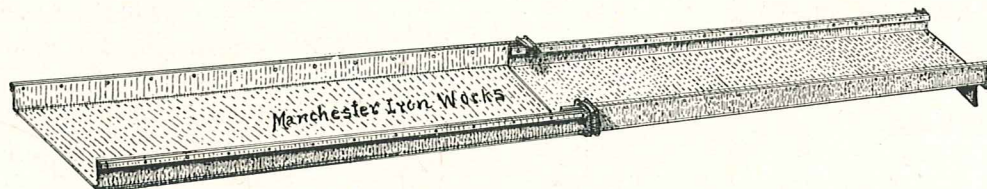


No. 173

ASH DUMPS FOR HEARTHES

No. 172—Single Ash Dump, opening $6\frac{1}{2}$ in. x $4\frac{1}{2}$ in. Price each.....\$.70

No. 173—Double Ash Dump, opening $7\frac{1}{2}$ in. x $5\frac{1}{2}$ in. Price each..... 1.00



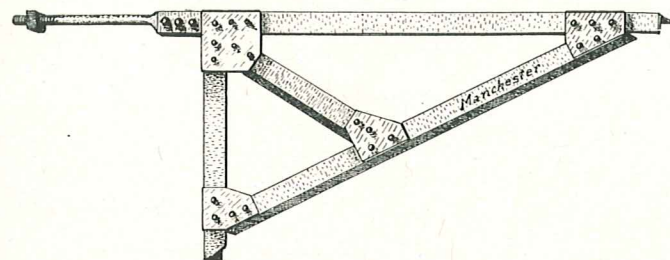
No. 174

COAL SLIDES OR UNLOADING CHUTES

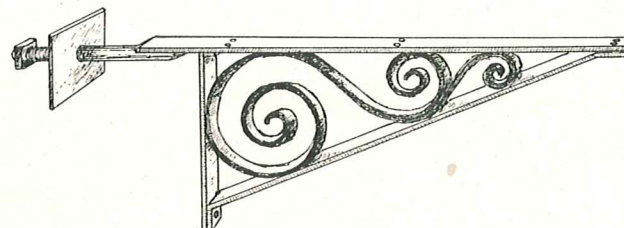
No. 174 shows slide reinforced with steel bars and channel guides. Slides are usually made in 8 ft. or 10 ft. sections, 18 in. wide with 4 in. sides. We can furnish same with plain edge, rolled edge, or angle edge, any size desired.

Prices on Application

MANCHESTER IRON WORKS, ST. LOUIS



No. 181



No. 182

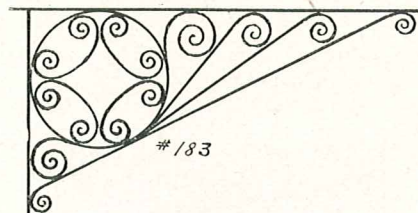
BALCONY SUPPORTING BRACKETS

Number	Description	Projection from wall,	3 ft.	3½ ft.	4 ft.	4½ ft.
No. 181—	Steel Angle Bracket. Price each.....		\$2.50	\$2.75	\$3.00	\$3.25
No. 182—	Stock Scroll Bracket. Price each.....		3.50	4.00	4.50	5.00

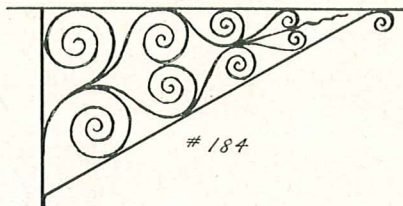
When ordering brackets, state thickness of wall, or length of bolt from outside of wall to end of bolt. When no length is given we furnish 17 in. bolt to extend through 13 in. wall and first joist. Steel plate washer always included.

Write for Discounts

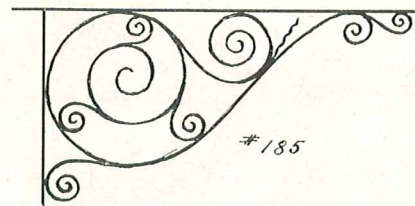
MANCHESTER IRON WORKS, ST. LOUIS



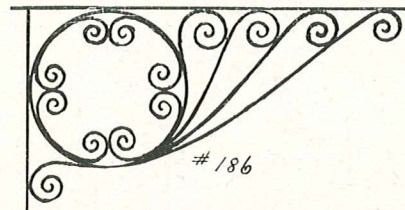
#183



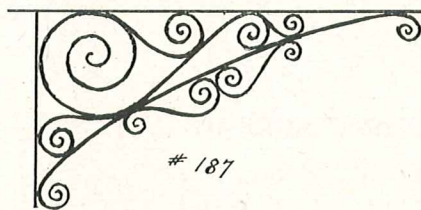
#184



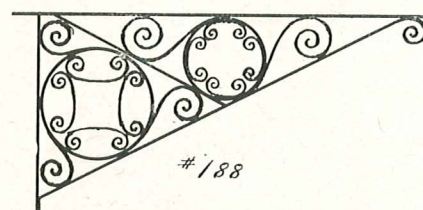
#185



#186



#187



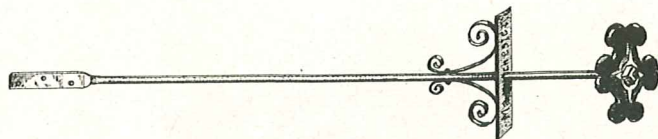
#188

BALCONY SUPPORTING BRACKETS

Nos. 183-188—Designs for Balcony Brackets, which may be used where more ornamentation is desired. When asking for prices, state projection from wall, and number of brackets required. Thickness of material is varied, according to size of bracket.

Prices on Application

MANCHESTER IRON WORKS, ST. LOUIS



No. 194



No. 195

CHIMNEY BRACES

No. 194— $\frac{3}{4}$ in. diameter rod, total length 7 ft. or less, Price each.....\$1.25 Each additional ft., \$.08
 No. 195— $\frac{3}{4}$ in. square rod, total length 7 ft. or less, Price each..... 1.50 Each additional ft., .10

We can furnish other sizes and designs, also with separate eye bolt through chimney.

No. 196 CAST IRON FLUE RINGS OR THIMBLES

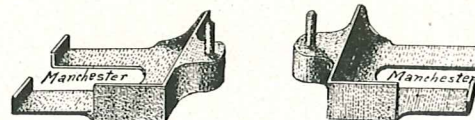
We carry in stock rings to fit 6 in.,
7 in., 8 in., 10 in., and 12 in. Pipe.

Price each,	6 in. dia.....	\$.25
	7 in. dia.....	.30
	8 in. dia.....	.40
	10 in. dia.....	.60
	12 in. dia.....	.90



No. 196

FLUE THIMBLES



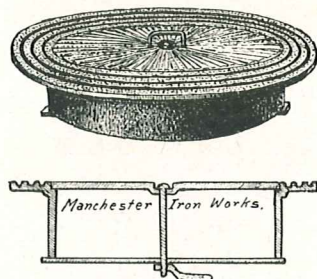
No. 197

HINGE BLOCKS

No. 197—Cast Iron Hinge Blocks are furnished in pairs.
They are to be built into brick jambs for hanging garage or
stable doors directly to brick wall.

Price per pair, \$.90

MANCHESTER IRON WORKS, ST. LOUIS

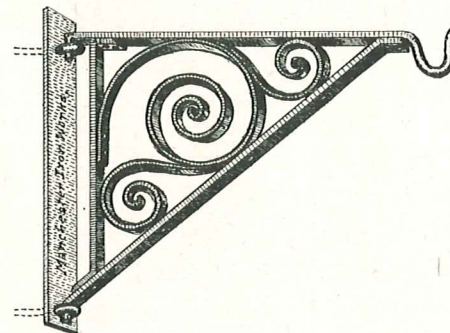


No. 198

COAL HOLE RINGS

- No. 198 18 in. dia. cover, 6 in. deep, 4 in. flange, Price each. \$5.00
 21 in. dia. cover, 6 in. deep, 4 in. flange, Price each. 6.00
 24 in. dia. cover, 6 in. deep, 4 in. flange, Price each. 7.00

We can furnish other sizes if desired. If rings are to be used for cistern tops, we furnish same with lugs on ring and cover locking lid by slight turn, in place of bolt and locking bar.



No. 200

SWINGING ASH HOIST

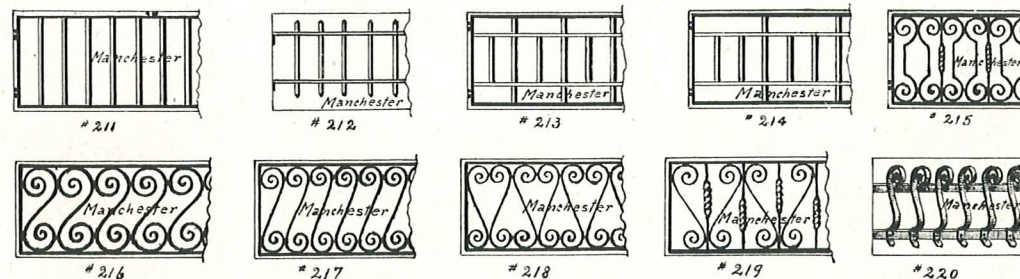
- No. 200 18 in. projection from wall, Price each. \$3.50
 24 in. projection from wall, Price each. 4.00
 No. 201 18 in. projection from wall, Price each. 2.50
 24 in. projection from wall, Price each. 2.75
 No. 201 same as No. 200, without scrolls.

All hoist brackets are furnished complete with eye bolts through wall.

When ordering, state thickness of wall.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



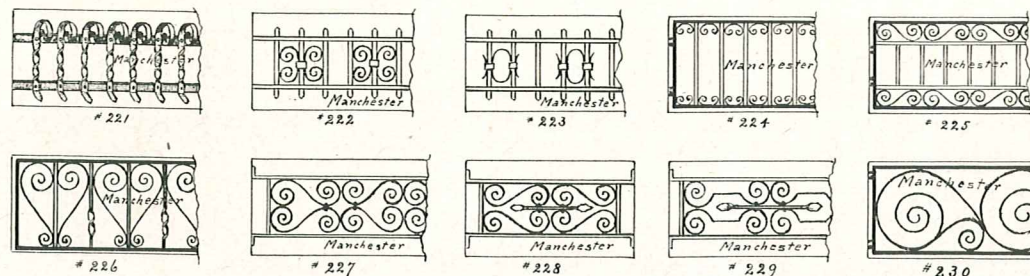
GUARDS FOR BULK HEADS UNDER SHOW WINDOWS

Nos. 211 to 230 may also be used for vent openings in foundations or under verandas or entrance steps or, in fact, for all small openings where a guard is desired.

Number	Height of opening	12 in. or less	14 in.	16 in.	18 in.
No. 211. Price per ft.....		\$.60	\$.62	\$.64	\$.66
No. 212. Price per ft.....		.50	.52	.54	.56
No. 213. Price per ft.....		.64	.66	.68	.70
No. 214. Price per ft.....		.64	.66	.68	.70
No. 215. Price per ft.....		.80	.83	.86	.90
No. 216. Price per ft.....		.65	.67	.70	.75
No. 217. Price per ft.....		.70	.73	.76	.80
No. 218. Price per ft.....		.70	.73	.76	.80
No. 219. Price per ft.....		.75	.78	.80	.84
No. 220. Price per ft.....		.70	.70	.75	.80

Discount depends on quantity and lengths of guards

MANCHESTER IRON WORKS, ST. LOUIS



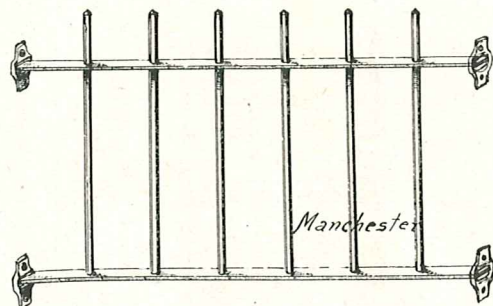
GUARDS FOR BULK HEADS UNDER SHOW WINDOWS

Number		Height of opening	12 in. or less	14 in.	16 in.	18 in.
No. 221.	Price per ft.....		\$.70	\$.72	\$.74	\$.76
No. 222.	Price per ft.....		.65	.67	.69	.72
No. 223.	Price per ft.....		.65	.67	.69	.72
No. 224.	Price per ft.....		.80	.82	.84	.86
No. 225.	Price per ft.....		1.00	1.05	1.10	1.20
No. 226.	Price per ft.....		.75	.78	.80	.84
No. 227.	Price per ft.....		.70	.72	.75	.80
No. 228.	Price per ft.....		.72	.74	.77	.82
No. 229.	Price per ft.....		.74	.76	.78	.85
No. 230.	Price per ft.....		.65	.75	.85	.95

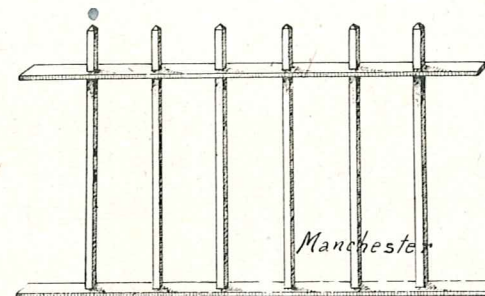
When ordering, give exact size of opening where guards are to be secured, so that we can make necessary allowance to make guards fit easily and neatly.

Discount depends on quantity and lengths of guards

MANCHESTER IRON WORKS, ST. LOUIS.



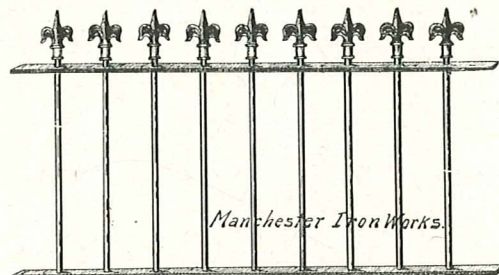
No. 251



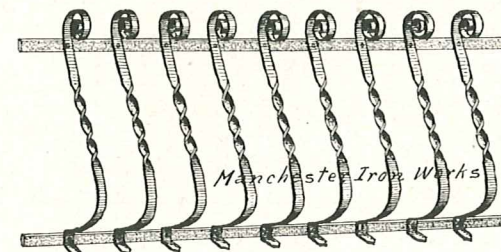
No. 252

IRON GUARDS FOR BASEMENT WINDOWS

No. 251—Plain Guard, round bars. Price per square ft. of opening: $\frac{3}{8}$ in. dia. bars, \$.28 $\frac{1}{2}$ in. dia. bars, \$.30 $\frac{5}{8}$ in. dia. bars, \$.35
 No. 252—Plain Guard, square bars. Price per square ft. of opening: $\frac{3}{8}$ in. dia. bars, .30 $\frac{1}{2}$ in. dia. bars, .33 $\frac{5}{8}$ in. dia. bars, .40



No. 253



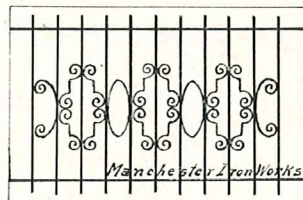
No. 254

No. 253—Spearhead Guard. Price per square ft. of opening: $\frac{1}{2}$ in. dia. bars.....\$.44
 No. 254—Goose Neck Scroll Guard. Price per square ft. of opening: $\frac{3}{4}$ in. x $\frac{3}{16}$ in. scrolls..... .60

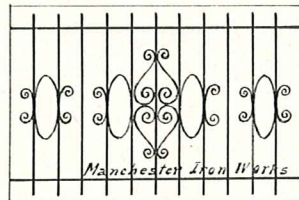
When ordering, give exact size of opening, so that we can make proper allowance to fit guards.

Discount depends on size and quantity of guards

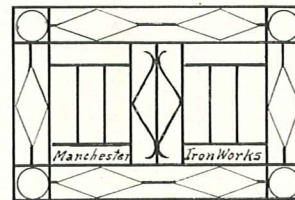
MANCHESTER IRON WORKS, ST. LOUIS



No. 255



No. 256



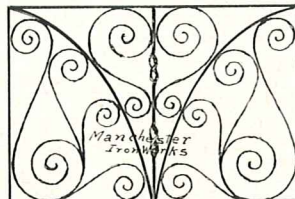
No. 257

ORNAMENTAL GRILLES FOR BASEMENT WINDOWS

No. 255.	Price per square ft.....	\$1.00
No. 256.	Price per square ft.....	.80
No. 257.	Price per square ft.....	1.40



No. 258



No. 259



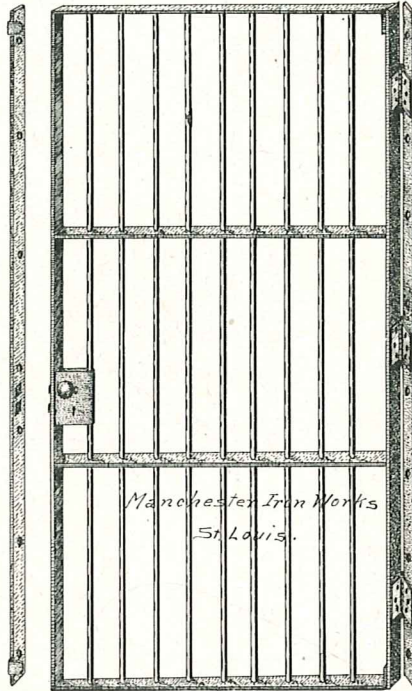
No. 260

No. 258.	Price per square ft.....	\$.90
No. 259.	Price per square ft.....	1.30
No. 260.	Price per square ft.....	1.20

The minimum charge for above grilles is 6 square ft.

Send sizes and number of grilles for net price. Give exact size of opening, naming width first and then height.

MANCHESTER IRON WORKS, ST. LOUIS



No. 275

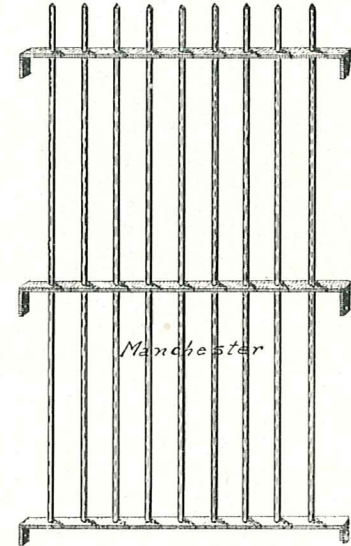
No. 275. Grated Iron Door. The best protection for rear store doors.

Notice that screws cannot be removed when door is closed.

It is easily attached to any door jamb, and has prevented many losses.

No. 276. Round Iron Bar Window Guard, made to be fastened to window frame.

We furnish these guards with cross bars extending into brick joints, where same can be walled in.

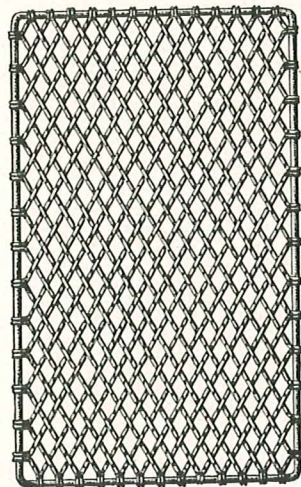


No. 276

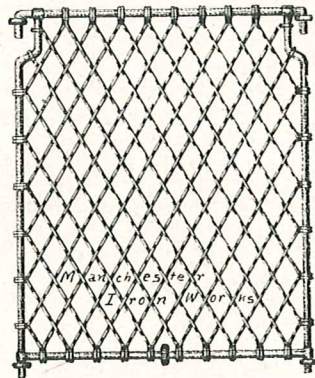
Door, Transom and Window Guards are usually made to match. We can furnish same with $\frac{1}{2}$ in. dia. bars, $\frac{5}{8}$ in. dia. bars, or $\frac{3}{4}$ in. dia. bars; usual spacing is 4 in., $3\frac{1}{2}$ in., or 3 in., from center to center of bars; frame bars are made in proportion to uprights.

Send exact sizes of openings, for net prices.

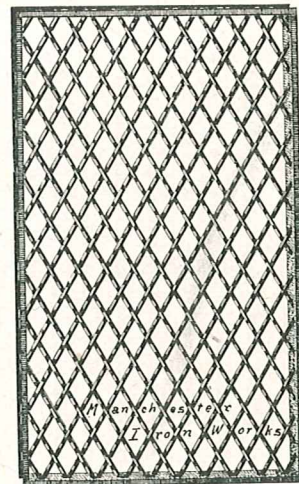
MANCHESTER IRON WORKS, ST. LOUIS



No. 280



No. 281



No. 282

WIRE WINDOW AND DOOR GUARDS

No. 280—Wire Window Guard with round iron frame.

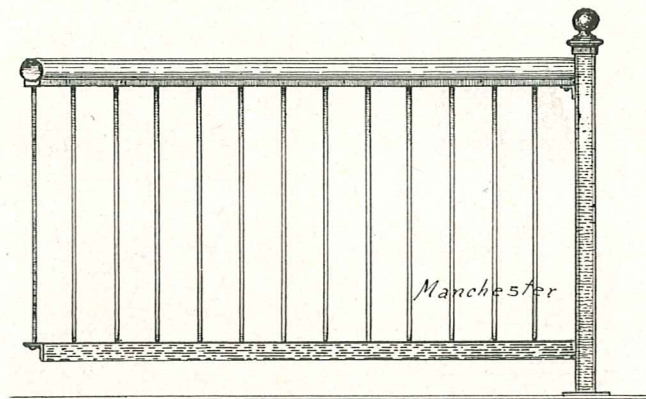
No. 281—Wire Guard for sash door, secured with screw eyes and eye bolt through door.

No. 282—Wire Window Guard with channel frame.

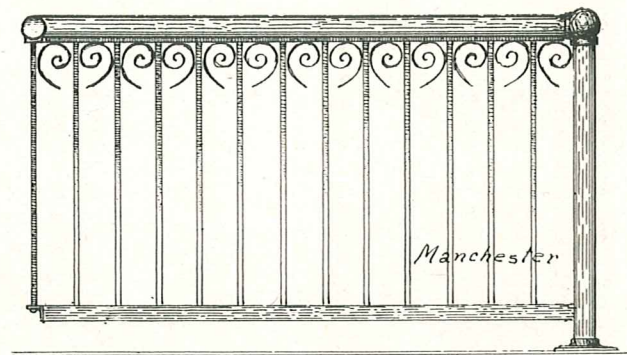
We can furnish wire guards made from No. 14 to No. 6 wire, having any size mesh, from $\frac{1}{2}$ in. up. Ordinary wire guards are made from No. 11, being $\frac{1}{8}$ in. diameter, or from No. 10, being $\frac{9}{64}$ in. diameter, and are usually furnished in $1\frac{1}{4}$ in. mesh with $\frac{3}{8}$ in. diameter round iron frame. All our wire guards are made from galvanized wire. Above cuts show diamond mesh, but we can furnish square mesh when desired.

When ordering, or asking for prices, give exact size of openings where guards are to be secured, stating width first, then height; also state number of wire, size of mesh, and whether diamond or square; size and kind of frame, and whether guards are to be stapled in place, or are to have lugs for fastening with screws.

MANCHESTER IRON WORKS, ST. LOUIS



No. 301



No. 302

IRON RAILINGS

Number	Size of Balusters	Price per lineal ft.
No. 301.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.30
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.60
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	1.90

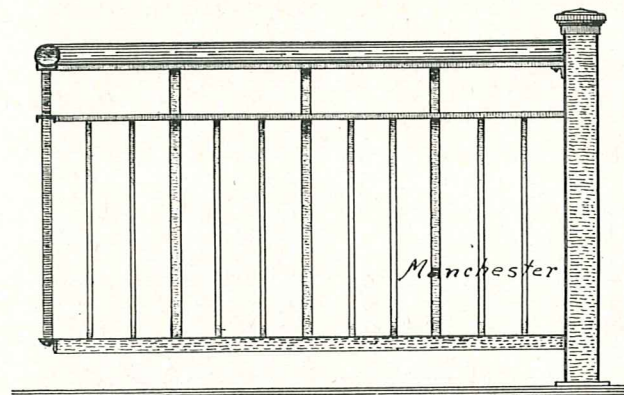
Post No. 301.	2 in. x 2 in.....	\$1.50 each
	$2\frac{1}{2}$ in. x $2\frac{1}{2}$ in.....	1.75 each
	3 in. x 3 in.....	2.00 each

Number	Size of Balusters	Price per lineal ft.
No. 302.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.50
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.80
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.20

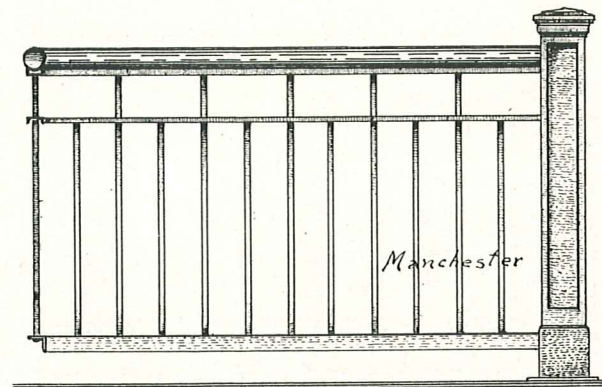
Post No. 302.	$1\frac{1}{2}$ in. dia. pipe.....	\$.85 each
	2 in. dia. pipe.....	1.00 each

Railings may be furnished with or without posts, as desired. Where railings end against masonry, ends of rails may be left longer, to extend into wall; length of railing to be figured to wall only, or railings may be provided with angle connections or flat end bars to allow screwing to wall with lag screws, as desired.

MANCHESTER IRON WORKS, ST. LOUIS



No. 303



No. 304

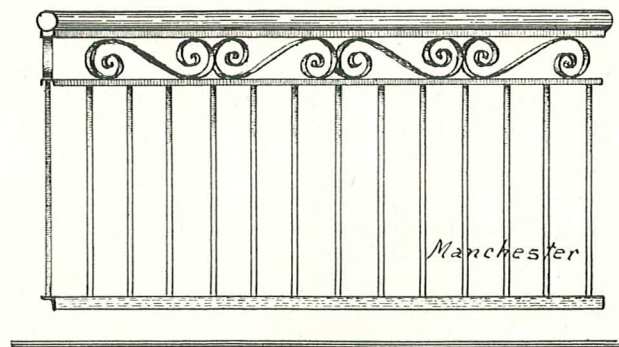
IRON RAILINGS

Number	Size of Balusters	Price per lineal ft.
No. 303.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.60
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.90
	$\frac{1}{2}$ in. x $\frac{1}{2}$ in. and $\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.00
<hr/>		
Post No. 303.	3 in. x 3 in.....	\$2.00

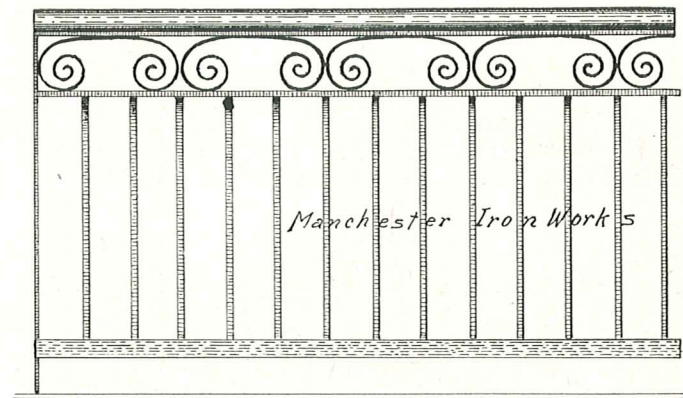
Number	Size of Balusters	Price per lineal ft.
No. 304.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.65
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.95
	$\frac{1}{2}$ in. x $\frac{1}{2}$ in. and $\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.05
<hr/>		
Post No. 304.	4 in. x 4 in.....	\$5.00

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 305



No. 306

IRON RAILINGS

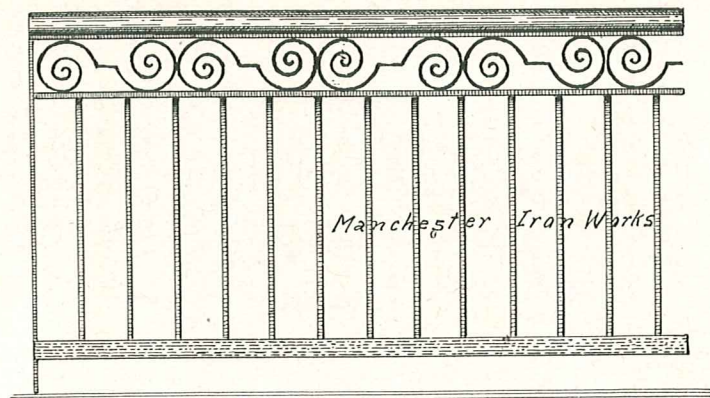
Number	Size of Balusters	Price per lineal ft.
No. 305.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.65
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.70
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.95
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.25

Number	Size of Balusters	Price per lineal ft.
No. 306.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.65
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.70
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.95
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.25

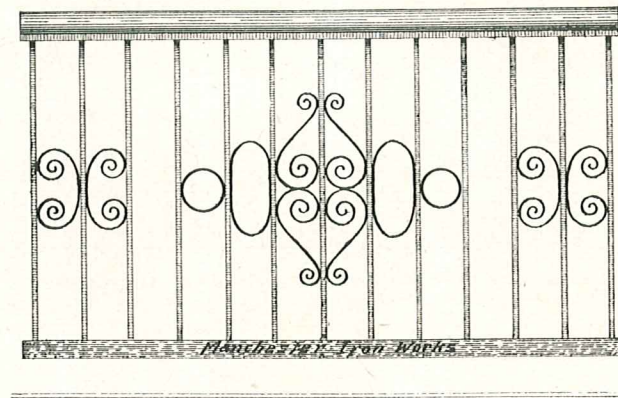
We can furnish other hand rails, in place of pipe, as shown, cast iron moulding, wrought iron moulding, square pipe, channel, or flat bar cap. If no special hand rail is mentioned, we furnish pipe hand rails, as shown. Lower rail may be channel, in place of angle, if desired.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 307



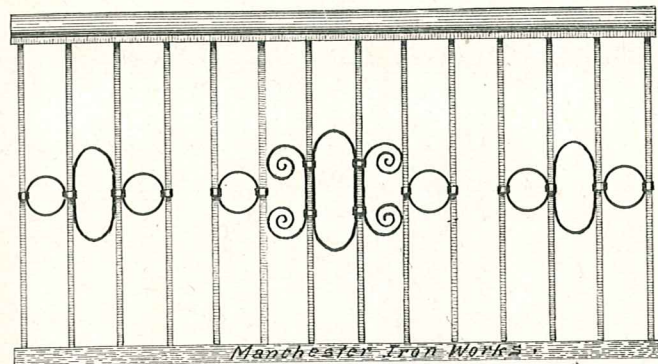
No. 308

IRON RAILINGS

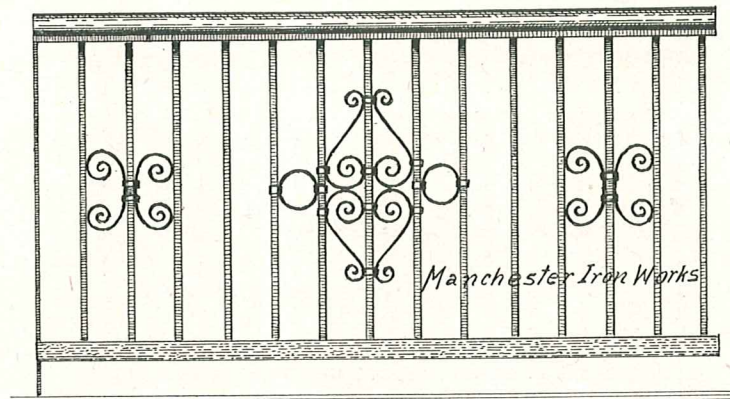
Number	Size of Balusters	Price per lineal ft.
No. 307.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.70
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.75
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	2.00
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.30

Number	Size of Balusters	Price per lineal ft.
No. 308.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.65
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.70
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	2.00
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.30

MANCHESTER IRON WORKS, ST. LOUIS



No. 309



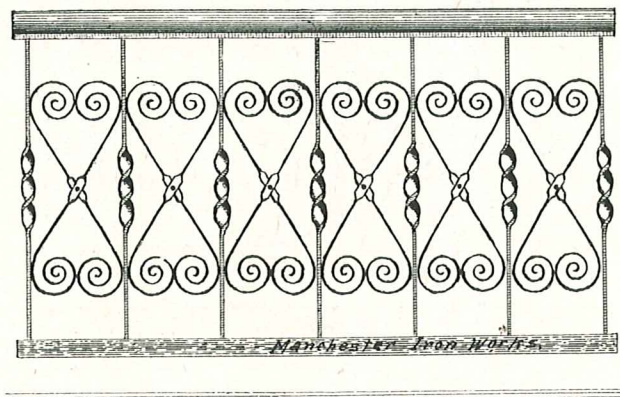
No. 310

IRON RAILINGS

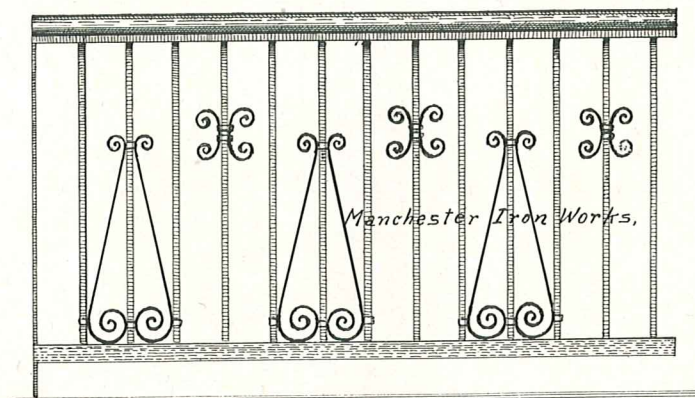
Number	Size of Balusters	Price per lineal ft.
No. 309.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.60
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.65
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.95
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.25

Number	Size of Balusters	Price per lineal ft.
No. 310.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.65
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	1.70
	$\frac{5}{8}$ in. x $\frac{5}{8}$ in.....	1.95
	$\frac{3}{4}$ in. x $\frac{3}{4}$ in.....	2.25

MANCHESTER IRON WORKS, ST. LOUIS



No. 311



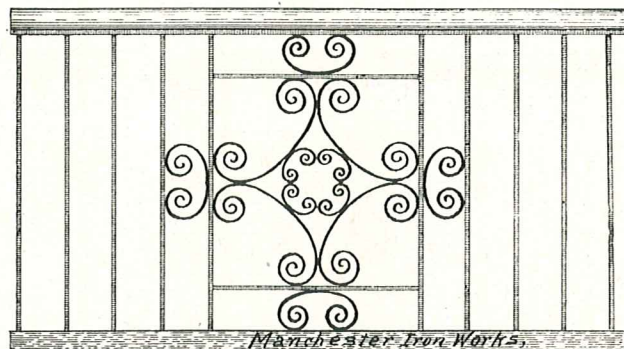
No. 312

IRON RAILINGS

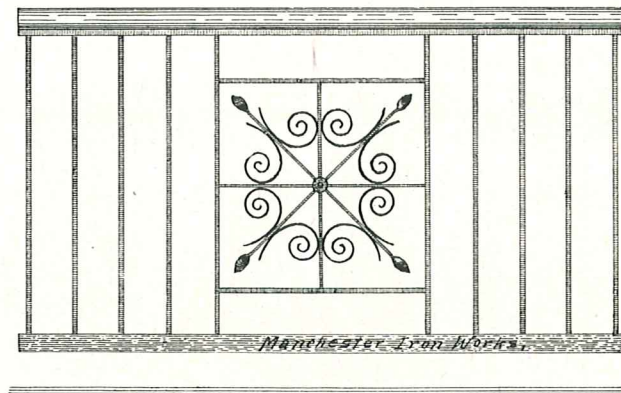
Number	Size of Balusters	Price per lineal ft.
No. 311.	$\frac{3}{16}$ in. x $\frac{3}{4}$ in.....	\$1.70
	$\frac{3}{16}$ in. x 1 in.....	2.00
	$\frac{1}{4}$ in. x $\frac{3}{4}$ in.....	1.85
	$\frac{1}{4}$ in. x 1 in.....	2.10

Number	Size of Balusters	Price per lineal ft.
No. 312.	$\frac{1}{2}$ in. x $\frac{1}{2}$ in.....	\$1.80
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	2.00
	$\frac{1}{2}$ in. x $\frac{3}{4}$ in.....	2.20
	$\frac{1}{2}$ in. x 1 in.....	3.50

MANCHESTER IRON WORKS, ST. LOUIS



No. 317



No. 318

IRON RAILINGS

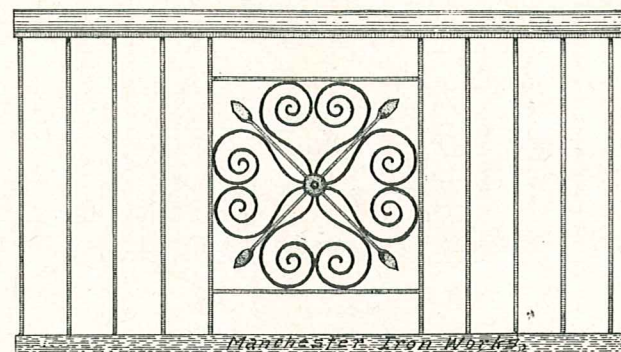
Number	Size of Balusters	Price per lineal ft.	Price per Panel
No. 317.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	\$1.40	\$1.20
	$\frac{3}{8}$ in. x 1 in.....	1.70	1.30
	$\frac{1}{2}$ in. x 1 in.....	2.00	1.40

Number	Size of Balusters	Price per lineal ft.	Price per Panel
No. 318.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	\$1.40	\$1.30
	$\frac{3}{8}$ in. x 1 in.....	1.70	1.40
	$\frac{1}{2}$ in. x 1 in.....	2.00	1.60

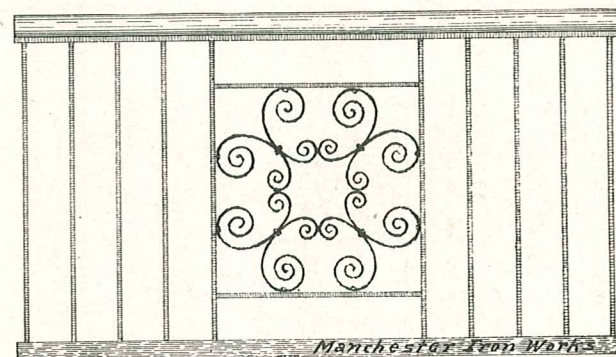
Note: These Railings may have one or more scroll panels in each section, or they may be entirely of panels. Price to be computed in all cases per lineal ft. of railing, plus the price of each panel used; for instance, six ft. of No. 318, of $\frac{3}{8}$ in. x $\frac{3}{4}$ in. balusters, with three panels, would cost \$8.40, plus \$3.90, total \$12.30 list, subject to discount.

Write for Discounts

MANCHESTER IRON WORKS, ST. LOUIS



No. 319



No. 320

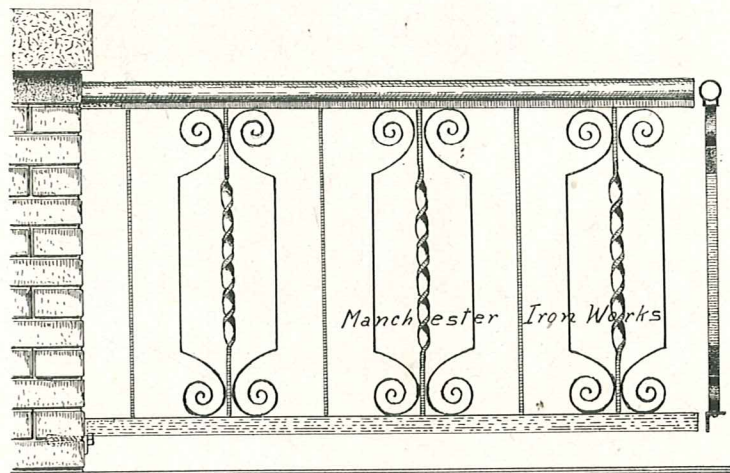
IRON RAILINGS

Number	Size of Balusters	Price per lineal ft.	Price per Panel
No. 319.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	\$1.40	\$1.50
	$\frac{3}{8}$ in. x 1 in.....	1.70	1.60
	$\frac{1}{2}$ in. x 1 in.....	2.00	1.80

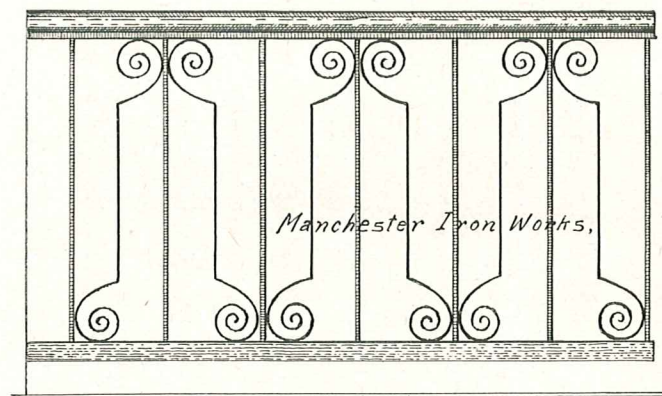
See note, page 39.

Number	Size of Balusters	Price per lineal ft.	Price per Panel
No. 320.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.....	\$1.40	\$1.00
	$\frac{3}{8}$ in. x 1 in.....	1.70	1.10
	$\frac{1}{2}$ in. x 1 in.....	2.00	1.25

MANCHESTER IRON WORKS, ST. LOUIS



No. 325



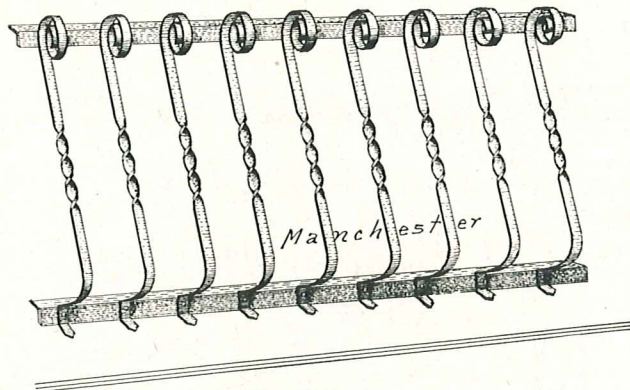
No. 326

IRON RAILINGS

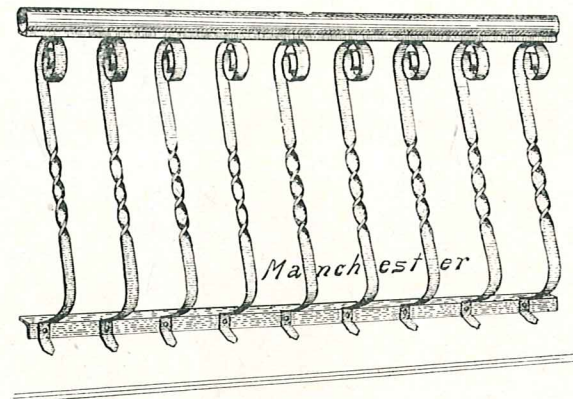
Number	Size of Balusters	Size of Scrolls	Price per lineal ft.
No. 325.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.,	$\frac{3}{16}$ in. x $\frac{3}{4}$ in.....	\$1.65
	$\frac{3}{8}$ in. x 1 in.,	$\frac{3}{16}$ in. x 1 in.....	1.85
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.,	$\frac{1}{4}$ in. x $\frac{3}{4}$ in.....	1.90
	$\frac{3}{8}$ in. x 1 in.,	$\frac{1}{4}$ in. x 1 in.....	2.20

Number	Size of Balusters	Size of Scrolls	Price per lineal ft.
No. 326.	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.,	$\frac{3}{16}$ in. x $\frac{3}{4}$ in.....	\$1.60
	$\frac{3}{8}$ in. x 1 in.,	$\frac{3}{16}$ in. x 1 in.....	1.80
	$\frac{3}{8}$ in. x $\frac{3}{4}$ in.,	$\frac{1}{4}$ in. x $\frac{3}{4}$ in.....	1.85
	$\frac{3}{8}$ in. x 1 in.,	$\frac{1}{4}$ in. x 1 in.....	2.10

MANCHESTER IRON WORKS, ST. LOUIS



No. 327



No. 328

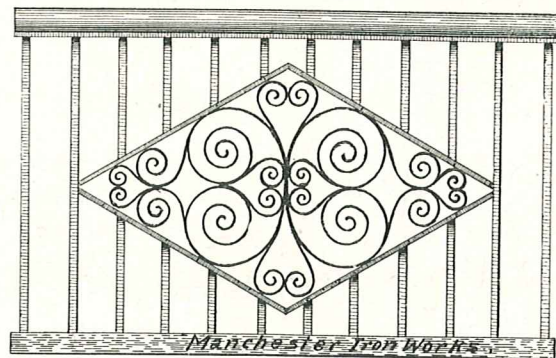
IRON RAILINGS

Number	Size of Scrolls	Price per lineal ft.
No. 327.	$\frac{1}{8}$ in. x 1 in.....	\$1.30
	$\frac{3}{16}$ in. x $\frac{3}{4}$ in.....	1.40
	$\frac{3}{16}$ in. x 1 in.....	1.50
	$\frac{1}{4}$ in. x $\frac{3}{4}$ in.....	1.70
	$\frac{1}{4}$ in. x 1 in.....	1.90

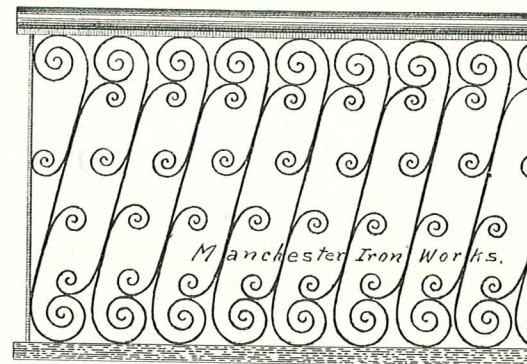
Number	Size of Scrolls	Price per lineal ft.
No. 328.	$\frac{1}{8}$ in. x 1 in.....	\$1.45
	$\frac{3}{16}$ in. x $\frac{3}{4}$ in.....	1.55
	$\frac{3}{16}$ in. x 1 in.....	1.65
	$\frac{1}{4}$ in. x $\frac{3}{4}$ in.....	1.85
	$\frac{1}{4}$ in. x 1 in.....	2.05

Note: If these railings are returned at right angles, without posts, corner scroll is set diagonally, and support and fastening to floor is provided without extra charge.

MANCHESTER IRON WORKS, ST. LOUIS



No. 329



No. 330

IRON RAILINGS

No. 329. Price on application.

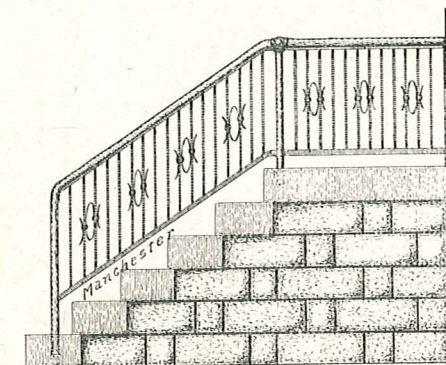
When writing for price, give measurement of railing, size of bars, and scrolls wanted and number of scrolled diamond panels to be used.

No. 330. Price on application.

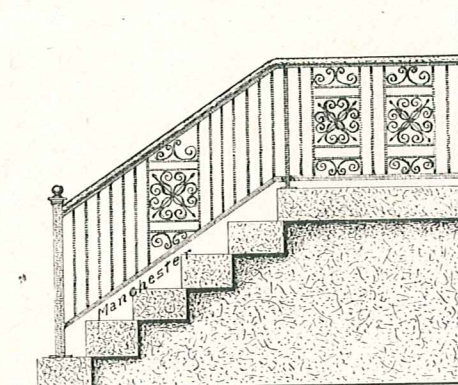
When asking price, state measurements of railing and size of bars for scrolls.

If you prefer other designs, send us sketch and description and we shall quote our lowest price.

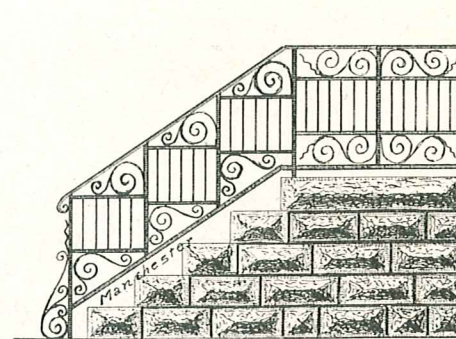
MANCHESTER IRON WORKS, ST. LOUIS



No. 335



No. 336



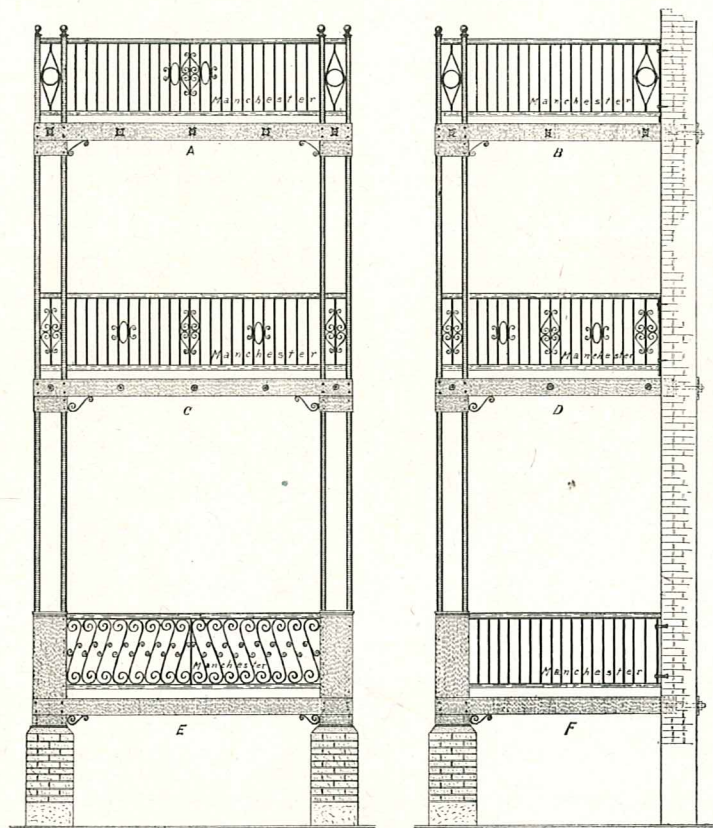
No. 337

ENTRANCE OR STEP RAILS

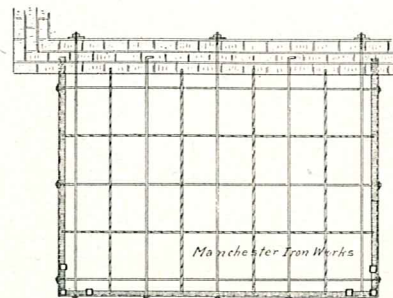
Nos. 335, 336 and 337 show different methods of making step rails. Designs Nos. 301, 302, 303, 304, 305, 306, 307 and 309 may also be used on steps.

When writing for prices, give measurements of steps and porch, indicating material of which steps and porch are made, and design selected.

MANCHESTER IRON WORKS, ST. LOUIS



No. 340



No. 341

STEEL AND CONCRETE PORCHES

No. 340. All steel and concrete porch may be put up on old as well as new buildings, one, two or more stories, as required. Any one design or different combinations may be used.

The floors have strong steel channel frames, well braced and anchored through wall, and are carried on six square pipe columns.

These porches are very strong and durable, and do not prevent light from entering windows.

No. 341 shows plan of frame, arrangement of columns, and our method of reinforcing the concrete slab.

We furnish these porches complete with all bolts, anchors and reinforcing rods. They are well fitted and easily set in place by any mechanic. When desired, brick or other material may be used for columns.

When asking for price, state design, size of porch desired, and number of stories.

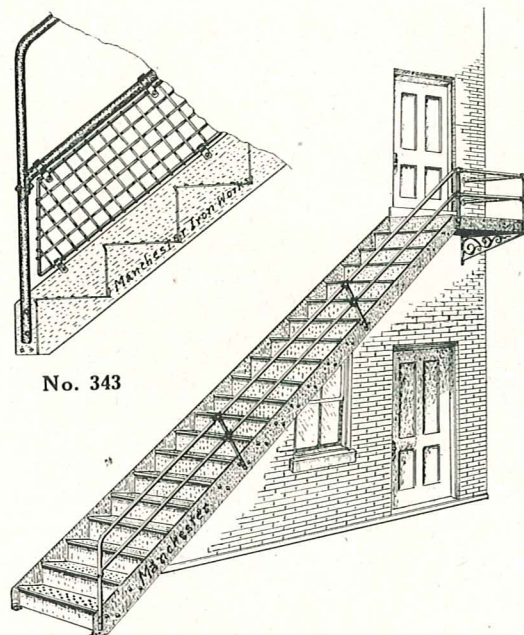
We can furnish same f. o. b. cars, or steel work set in place, or porches entirely complete, including concrete.

MANCHESTER IRON WORKS, ST. LOUIS

No. 343 shows construction of stairs and our method of securing wire guard rail to same for protection of smaller children.

Stairs can be furnished with or without wire guard rail.

When ordering wire guards separate, state accurate dimensions between rails and posts, size of posts and rails and run and rise of stairs.



No. 343

No. 342

OUTSIDE STEEL STAIRS

Our stairs are giving universal satisfaction, being strong and durable, as well as attractive in appearance.

Width of stairs	Rise from ground	Price f. o. b. cars
3 ft.	12 ft.	\$100.00
3 ft.	14 ft.	110.00
3 ft.	16 ft.	120.00
3½ ft.	12 ft.	110.00
3½ ft.	14 ft.	120.00
3½ ft.	16 ft.	130.00
4 ft.	12 ft.	116.00
4 ft.	14 ft.	126.00
4 ft.	16 ft.	136.00

Write for Discounts

Prices include platform four ft. long, and stairs complete, with stringers, treads and risers, pipe railing and all necessary supporting brackets.

For wire guard rail, add 50 cents per ft. of rise to list.

Specifications—Stringers are 8 in. wide, treads are ca. 10 in. wide and have ca. 8 in. of riser, formed of one piece of steel with round projecting nosing; treads are roughened to prevent slipping; the platform is made of solid sheet steel on channel frame, well stiffened; the railing is made from standard pipe, with standard malleable railing fittings.

When ordering, state rise from ground to underside of door sill, thickness of wall, width of stairs, size of platform desired, and show rough sketch of doors or windows and stairs.

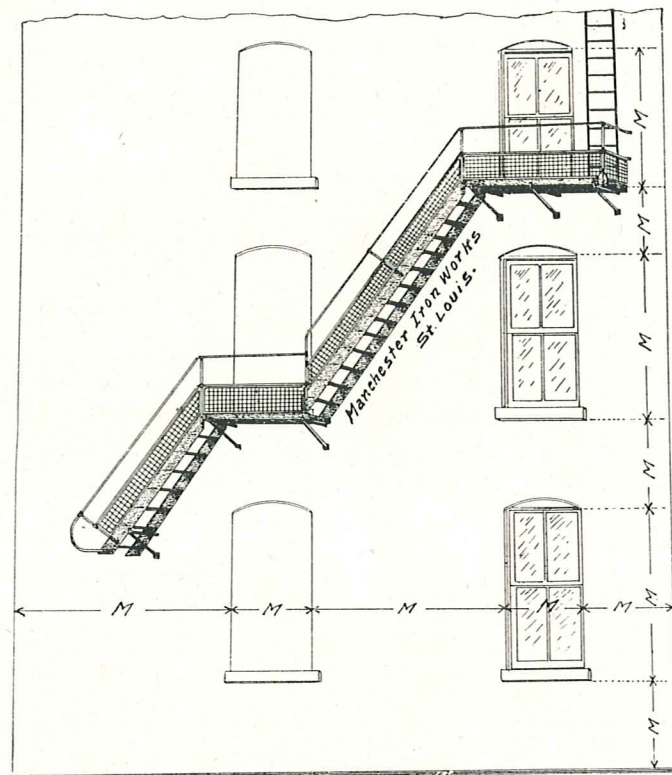
MANCHESTER IRON WORKS, ST. LOUIS

STAIR FIRE ESCAPES

No. 365—Typical View of Standard Stair Fire Escape.

Fire Escapes have landings or platforms at one or more windows on each floor, with stairs connecting same, and extending to within nine ft. of the ground or solid to the ground for schools, hospitals, assembly halls, etc. It is advisable to have a ladder on the upper landing for ready access to roof in case of fire.

For further description, see next page.



No. 365

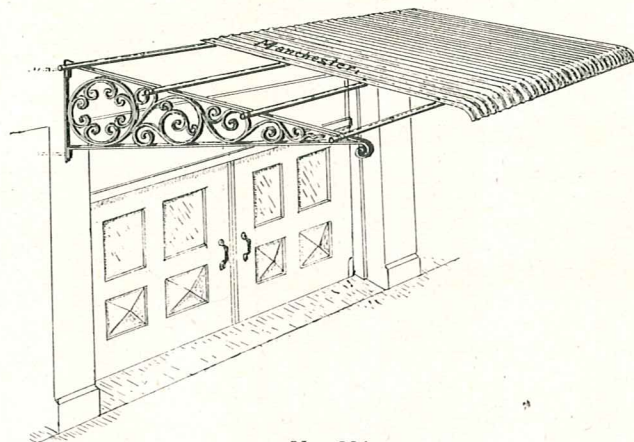
Price on application, f. o. b. cars, or erected in place

When ordering or writing for price, send sketch, giving outline of fire escape, showing measurements, as indicated by letter M, also stating thickness and material of wall.

It is very important to describe belt courses, water-tables or other projections of wall, if any. If ladder to roof is desired, state distance to roof and projection of cornice, if any, and style of roof.

We ship in convenient parts, with instructions, so that any mechanic can erect same quickly.

MANCHESTER IRON WORKS, ST. LOUIS



No. 394

No. 394—Canopy, section removed to show brackets and purlins.

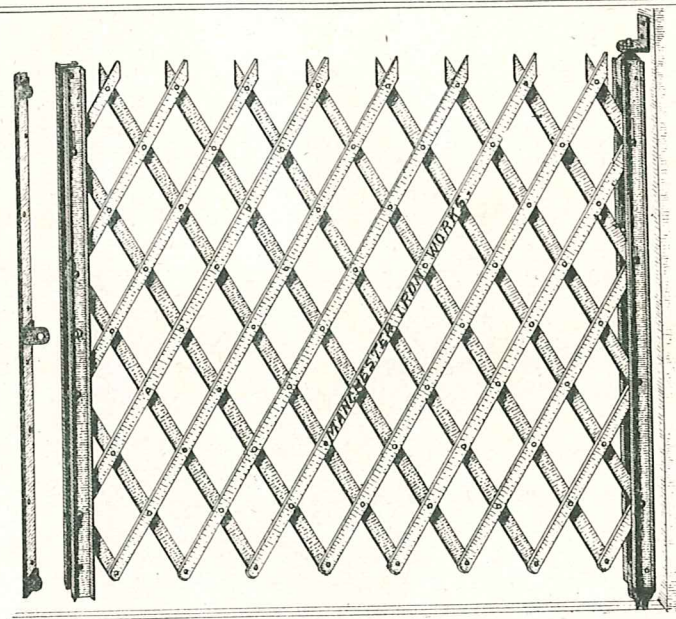
Composed of ornamental steel brackets, pipe purlins and corrugated iron; a very practical shelter, easily secured to any building; for entrances, store fronts, loading platforms, etc.

We furnish canopies from four ft. to ten ft. wide, any length required, brackets being spaced about eight ft. apart.

Covering may be curved on edge, as shown, straight, or entirely curved on any radius desired.

Where more light is needed, we can furnish wired glass roof.

Send measurements for price.



No. 400

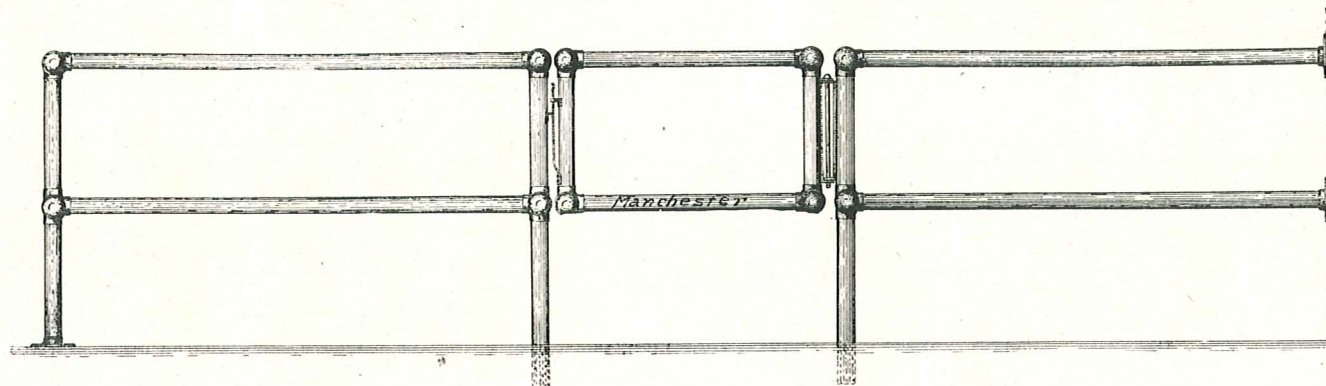
No. 400—Iron Folding Gate.

Folding gates are one of the best means of closing vestibules of churches, theaters, or stores, or they may be used at factory doors, when doors are kept open. They are easily attached to jambs or piers, and fold into a small space, swinging close to jambs.

Gates are furnished single, as shown, or in pairs, if opening to be closed is wide. These gates are pivoted at floor in steel socket, thereby adding no weight to jamb or pier; may be locked with pin or padlock, as desired.

Do not hesitate to write for prices.

MANCHESTER IRON WORKS, ST. LOUIS



No. 415

STANDARD PIPE RAILINGS

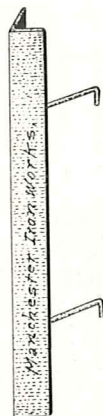
Pipe railings are made of standard pipe and malleable railing fittings; are furnished any diameter, $1\frac{5}{8}$ in. and $1\frac{7}{8}$ in. outside diameter being mostly used. Railings may be secured to floor and walls by means of flanges, as shown at ends, or they may be let into concrete, as shown at gate posts. Gate is shown with plain hinge bar and spring catch; but we can furnish same with self-closing spring hinges, holding gate in place without latch.

We can furnish single, double or triple rails, straight or curved.

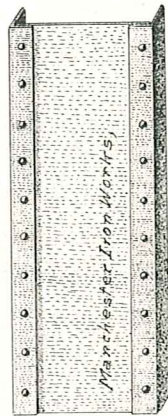
Long pipe railings are shipped in convenient sections, so they may be connected easily.

We shall be pleased to quote you our lowest price on any sketch you may send.

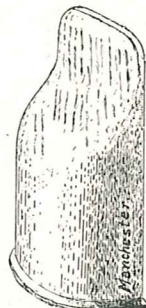
MANCHESTER IRON WORKS, ST. LOUIS



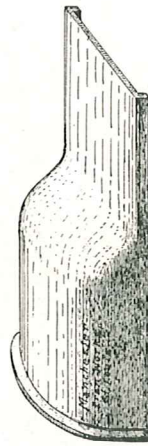
No. 501



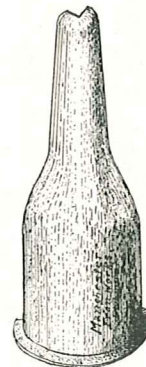
No. 502



No. 503



No. 504



No. 505

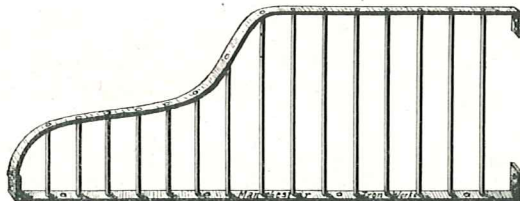
STEEL AND CAST IRON WHEEL GUARDS

		Price f. o. b. cars
No. 501—Steel Angle Corner Guard, 4 in. x 4 in.....	42 in. high.....	\$1.75
No. 502—Steel Jamb Guard, 13 in. wide.....	42 in. high.....	3.75
No. 502—Steel Jamb Guard, 18 in. wide.....	42 in. high.....	5.00
No. 503—Cast Iron Wheel Guard, 12 in. wide.....	26 in. high.....	3.50
No. 504—Cast Iron Wheel Guard, 13 in. wide.....	42 in. high.....	5.00
No. 505—Cast Iron Corner Guard.....	42 in. high.....	5.50

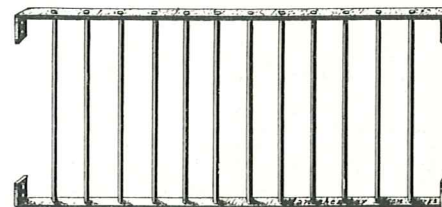
Anchors for securing guards to walls are included.

Discount depends on number of guards ordered

MANCHESTER IRON WORKS, ST. LOUIS



No. 510



No. 511

STALL GUARDS

No. 510—O. G. Stall Guard; 24 in. high, 6 ft.⁸ long.

Size of Bars	Size of Frame	Price f. o. b. cars
$\frac{3}{8}$ in. round	$1\frac{1}{2}$ in. x $\frac{1}{4}$ in.	\$5.00 each
$\frac{1}{2}$ in. round	$1\frac{1}{2}$ in. x $\frac{3}{8}$ in.	6.00 each
$\frac{5}{8}$ in. round	2 in. x $\frac{3}{8}$ in.	7.20 each

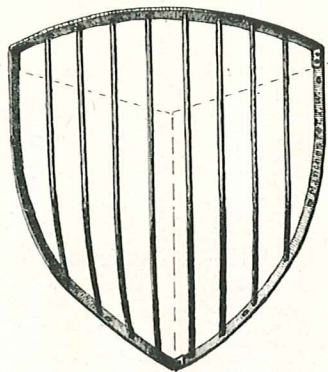
No. 511—Box Stall Guard; 24 in. high, any length.

Size of Bars	Size of Frame	Price per lineal ft.
$\frac{3}{8}$ in. round	$1\frac{1}{2}$ in. x $\frac{1}{4}$ in.	\$.75
$\frac{1}{2}$ in. round	$1\frac{1}{2}$ in. x $\frac{3}{8}$ in.	.90
$\frac{5}{8}$ in. round	2 in. x $\frac{3}{8}$ in.	1.10

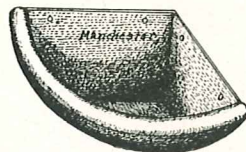
We can furnish either style any size desired. They are by far the best partitions that can be placed between stalls, being strong, airy, sanitary and easily kept painted.

State number and size wanted when writing for discount

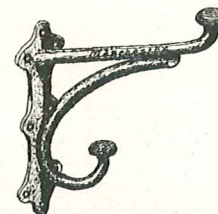
MANCHESTER IRON WORKS, ST. LOUIS



No. 517



No. 518



No. 519

STABLE FITTINGS

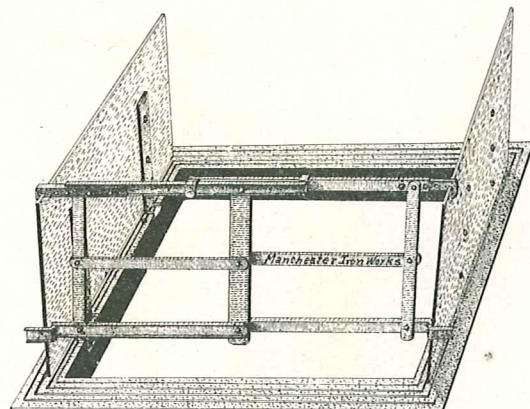
- No. 517—Wrought Iron Hay Rack, $\frac{1}{2}$ in. round bars, $1\frac{1}{4}$ in. x $\frac{1}{4}$ in frame.....Price \$3.00 each
- No. 518—Cast Iron Feed Box, rolled edge.....Price 2.50 each
- No. 519—Cast Iron Harness Hook, 14 in. projection.....Price .75 each
- No. 517a—Hay Rack, made on one-half circle, wrought or cast iron.....Price 5.00 each

These fittings are the most practical, and will save many times their cost in feed or harness in a short time.

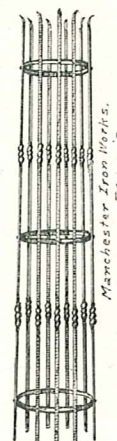
We can furnish other shapes when desired.

Write for Discounts

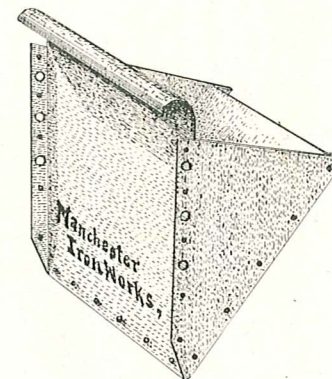
MANCHESTER IRON WORKS, ST. LOUIS



No. 570



No. 582



No. 597

No. 570—**CELLAR DOOR GUARD**, folding; the best way to prevent accidents; made to fit any doors. State size of doors and distance between same, top and bottom, when open. Price, f. o. b. cars.....\$2.50

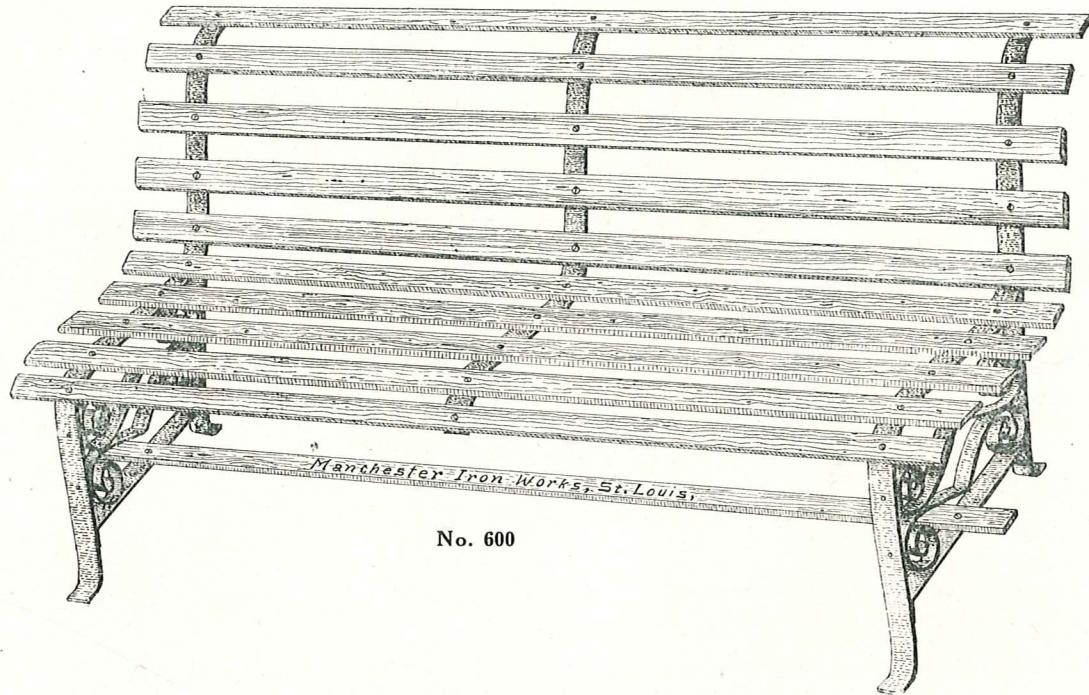
No. 582—**TREE GUARD**, of $\frac{3}{4}$ in. x $\frac{3}{16}$ in. steel; diameter at top, 11 in.; at bottom, 13 in.; 5 ft. 6 in. high; substantially made. Price, f. o. b. cars.....\$3.60

No. 597—**ELEVATOR BUCKET**, of No. 14 steel and heavier. Send us sample of worn out buckets, and we will name you price on same in any quantity.

We can furnish any other sheet steel construction, such as bins, grain chutes, stacks, etc.

Write for Prices

MANCHESTER IRON WORKS, ST. LOUIS



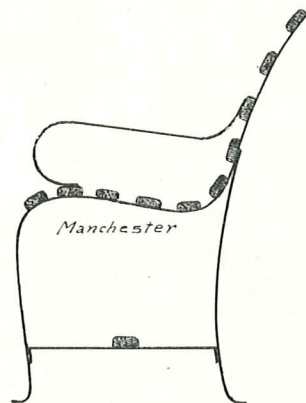
No. 600

LAWN BENCHES OR SETTEES

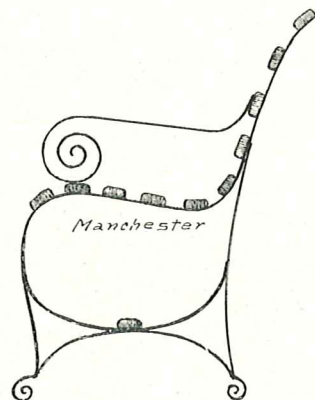
No. 600—Illustrates our lawn benches. They are made on lines to secure the most comfortable, strong and durable seat, and they are an ornament as well as a convenience on any porch or lawn. Benches are furnished in various styles, shown on page 57. As lumber is easily obtained in many places, we quote prices per set of irons, composed of two stands and one center brace, with all bolts for 2 in. x 1 in. wood slats.

For Price, see following page

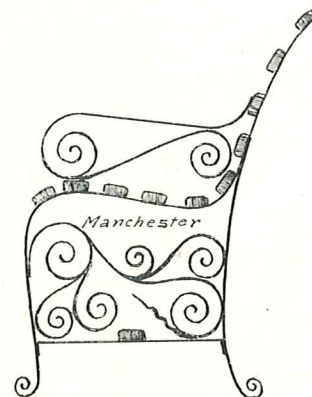
MANCHESTER IRON WORKS, ST. LOUIS



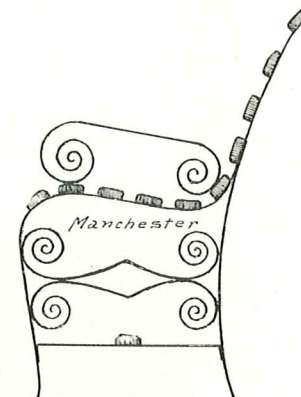
No. 601



No. 602



No. 603



No. 604

LAWN BENCHES OR SETTEES

	No. 601	No. 602	No. 603	No. 604
Per set of two stands and one center brace and bolts.....	\$3.75	\$4.45	\$7.20	\$6.00
Per set of two arm rests.....	.40	.60	1.20	1.00
Per set of eleven 2 in. x 1 in. oak slats, 6 ft. long, painted.....	2.20	2.20	2.20	2.20
Bench complete, including stands, brace, slats and arm rests, shipped K. D.....	6.35	7.25	10.60	9.20

We can also furnish settees with steel slats, for cemeteries and parks; any length.

All prices f. o. b. cars St. Louis

MANCHESTER IRON WORKS, ST. LOUIS

WEIGHTS OF SHEETS AND PLATES

Estimated weights by Mills Standard gauge of main sizes used.

This table is to aid our customers in determining the weight and thickness of material, when number of steel is mentioned in quotations.

Number of gauge	Thickness in in.		Weight per sq. ft. in pounds
	Fractions	Decimals	
7-0's	$\frac{1}{2}$ in.	.5	20.4
000	$\frac{3}{8}$ in.	.375	15.3
0	$\frac{5}{16}$ in.	.312	12.75
3	$\frac{1}{4}$ in.	.25	10.2
7	$\frac{3}{16}$ in.	.187	7.65
8	$\frac{11}{64}$ in.	.171	7.0125
9	$\frac{5}{32}$ in.	.156	6.375
10	$\frac{9}{64}$ in.	.140	5.7375
11	$\frac{1}{8}$ in.	.125	5.1
12	$\frac{7}{64}$ in.	.109	4.625
14	$\frac{5}{64}$ in.	.078	3.1875
16	$\frac{1}{16}$ in.	.062	2.55
18	$\frac{1}{20}$ in.	.05	2.04
20	$\frac{3}{80}$ in.	.037	1.53
22	$\frac{1}{32}$ in.	.031	1.275
24	$\frac{1}{40}$ in.	.025	1.02

$\frac{1}{4}$ in. Universal Mill Plates

Weight in pounds per lineal ft.

Width	Weight
12 in.	10.2
11 in.	9.34
10 in.	8.5
9 in.	7.65
8 in.	6.8
7 in.	5.95

We carry $\frac{1}{4}$ in. U. M. Plates in stock, 35 ft. long.

MANCHESTER IRON WORKS, ST. LOUIS

WEIGHTS OF I BEAMS, CHANNELS, ANGLES AND TEES

Estimated weight in pounds per ft.

I Beams			Channels		
Size	Width of flange	Weight	Size	Width of flange	Weight
15 in.	5½	42	15 in.	3.4	33
12 in.	5	31.5	12 in.	2.94	20.5
10 in.	4.66	25	10 in.	2.60	15
9 in.	4.33	21	9 in.	2.43	13.25
8 in.	4	18	8 in.	2.26	11.25
7 in.	3.66	15	7 in.	2.09	9.75
6 in.	3.33	12.25	6 in.	1.92	8
5 in.	3	9.75	5 in.	1.75	6.50
4 in.	2.66	7.5	4 in.	1.58	5.25
3 in.	2.33	5.5	3 in.	1.41	4

I beams, channels, angles and tees 3 in. and larger are sold by nominal weight; small channels, angles and tees by actual weight.

Angles		Tees	
Size in in.	Weight	Size in in.	Weight
6 x6 x⅜	14.9	3 x3 x ⁵ / ₁₆	6.8
6 x4 x⅜	12.3	2½x2½x ⁵ / ₁₆	5.6
5 x5 x⅜	12.3	2 x2 x¼	3.7
5 x4 x⅜	11.0	1½x1½x ³ / ₁₆	2.0
5 x3½x ⁵ / ₁₆	8.7	Small Channels or Grooved Steel	
4 x4 x ⁵ / ₁₆	8.2		
4 x3 x ⁵ / ₁₆	7.2	Size in in.	Weight
3 x3 x¼	4.9		
2½x2½x¼	4.1	2 x1 x ³ / ₁₆	2.4
2½x2 x¼	3.7	2 x ⁹ / ₁₆ x ³ / ₁₆	1.91
2 x2 x¼	3.2	1½x ½x⅛	1.12
2 x2 x ³ / ₁₆	2.5	1¼x ½x⅛	1.01
1½x1½x ³ / ₁₆	1.8	1 x ½x⅛	0.82
1¼x1¼x ³ / ₁₆	1.5		
1¼x1¼x⅛	1.1		
1 x1 x⅛	0.8		

These tables do not comprise all sizes, but only those carried in stock or used in manufacturing our products. Table of I beams and channels includes only the standard or light weight sections. Heavier beams should only be used when there is not sufficient room for the larger size beam.

MANCHESTER IRON WORKS, ST. LOUIS

ESTIMATED WEIGHTS OF STEEL BARS PER FOOT, IN POUNDS

Round Bars		Square Bars		Width in in.	Flat Bars					
Size in in.	Weight per ft.	Size in in.	Weight per ft.		Thickness in in.					
					⅛	³ / ₁₆	¼	⁵ / ₁₆	⅜	½
					lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
⅛	.042	⅛	.053	½	.213	.319	.475	.53	.64	
¼	.167	¼	.212	⅝	.265	.399	.53	.665	.795	
⁵ / ₁₆	.261	⁵ / ₁₆	.333	¾	.32	.479	.64	.795	.96	
⅜	.375	⅜	.478	7⁄8	.373	.555	.745	.930	1.115	
⁷ / ₁₆	.511	⁷ / ₁₆	.651	1	.425	.638	.85	1.06	1.28	1.70
½	.667	½	.850	1¼	.53	.797	1.06	1.33	1.59	2.12
⁹ / ₁₆	.845	⁹ / ₁₆	1.076	1½	.64	.957	1.28	1.59	1.92	2.55
⅝	1.043	⅝	1.328	1¾	.745	1.11	1.49	1.86	2.23	2.98
¾	1.502	¾	1.913	2	.85	1.28	1.70	2.12	2.55	3.40
7⁄8	2.044	7⁄8	2.603	2½	1.06	1.59	2.12	2.65	3.19	4.25
1	2.670	1	3.400	3	1.275	1.91	2.55	3.19	3.83	5.10
1⅛	3.379	1⅛	4.303	4	1.70	2.55	3.40	4.25	5.10	6.80
1¼	4.173	1¼	5.312	5	2.125	3.19	4.25	5.31	6.38	8.50
1½	6.008	1½	7.650	6	2.55	3.83	5.10	6.38	7.65	10.20
1¾	8.178	1¾	10.410							
2	10.68	2	13.600							

For cold twisted squares (reinforcing rods), use square bar table.

MANCHESTER IRON WORKS, ST. LOUIS

SAFE LOADS OF STEEL CHANNELS

Standard or light weight sections

Safe loads are given in pounds uniformly distributed, and include weight of channel

Size of Channel and Weight		Distance between supports in ft.												
		4	5	6	7	8	9	10	11	12	13	14	15	16
3 in.	4 lbs.	2910	2330	1940	1660	1450	1290	1160	1060	970	890	830	780	730
4 in.	5¼ lbs.	5060	4050	3370	2890	2530	2250	2020	1840	1690	1560	1440	1350	1260
5 in.	6½ lbs.	7910	6330	5270	4520	3960	3520	3160	2880	2640	2430	2260	2110	1980
6 in.	8 lbs.	11550	9240	7700	6600	5780	5130	4620	4200	3850	3550	3300	3080	2890
7 in.	9¾ lbs.	16070	12850	10710	9180	8030	7140	6430	5840	5360	4940	4590	4280	4020
8 in.	11¼ lbs.	21530	17230	14360	12310	10770	9570	8610	7830	7180	6630	6150	5740	5380
9 in.	13¼ lbs.	28040	22430	18690	16020	14020	12460	11220	10200	9350	8630	8010	7480	7010
10 in.	15 lbs.							14270	12970	11890	10980	10190	9510	8920
12 in.	20½ lbs.							22780	20700	18980	17520	16270	15180	14230
15 in.	33 lbs.							44450	40410	37040	34190	31750	29630	27780

MANCHESTER IRON WORKS, ST. LOUIS

SAFE LOADS OF STEEL ANGLES

This table is confined to sizes principally used

Safe loads are given in pounds uniformly distributed, and include weight of angle

Size of		Weight	Distance between supports in ft.												
Angle in in.		per ft.	3	4	5	6	7	8	9	10	11	12	13	14	15
Either leg vertical															
6x6	x $\frac{3}{8}$	14.9	12550	9410	7530	6270	5380	4700	4180	3760	3420	3140	2900	2690	2510
5x5	x $\frac{3}{8}$	12.3	8610	6460	5170	4310	3690	3230	2870	2580	2350	2150	1990	1850	1720
4x4	x $\frac{5}{16}$	8.2	4580	3430	2750	2290	1960	1720	1530	1370	1250	1140	1060	980	920
3x3	x $\frac{1}{4}$	4.9	2050	1540	1230	1030	880	770	680	620	560	510			
Long leg vertical															
6x4	x $\frac{3}{8}$	12.3	11800	8850	7080	5900	5060	4420	3930	3540	3220	2950	2720	2530	2360
5x3½	x $\frac{5}{16}$	8.7	6860	5160	4130	3440	2950	2580	2290	2060	1880	1720	1590	1470	1380
4x3	x $\frac{5}{16}$	7.2	4390	3290	2630	2190	1880	1640	1460	1320	1200	1100	1010	940	880
Short leg vertical															
6x4	x $\frac{3}{8}$	12.3	5700	4280	3420	2850	2440	2140	1900	1710	1550	1430	1320	1220	1140
5x3½	x $\frac{5}{16}$	8.7	3630	2720	2180	1820	1560	1360	1210	1090	990	910	840	780	
4x3	x $\frac{5}{16}$	7.2	2610	1960	1570	1310	1120	980	870	780	710	650	600	560	

MANCHESTER IRON WORKS, ST. LOUIS

USEFUL INFORMATION

Weights of Metals per cu. ft. in pounds

Platinum	1344
Gold, 24 carat.	1206
Lead	711
Silver	655
Copper, rolled	555
Copper, cast	540
Steel	490
Iron, wrought.	480
Iron, cast.	450
Aluminum	164

No. per pound of Common Wire Nails

2 dwt.	875
3 dwt.	570
4 dwt.	315
5 dwt.	270
6 dwt.	180
7 dwt.	160
8 dwt.	105
9 dwt.	95
10 dwt.	70
12 dwt.	65
16 dwt.	50
20 dwt.	30
30 dwt.	24
40 dwt.	18

Weights of Masonry and Building

Material per cu. ft. in pounds

Brickwork, lime, mortar.	120-130
Brickwork, cement, mortar.	130-140
Concrete	140-145
Sandstone rubble	145
Granite, solid	170
Slate, solid	175
Marble	168
Window glass	157
Cement, Portland	80-100
Sand	90-100
Lime	53
Clay	120

Lumber

Boxwood	60
Maple	49
White oak	48
Ash	47
Southern pine	45
Red oak	40
Yellow pine	34
Spruce	25
Cork	15

Before starting to build, send us your plans for estimate of the iron and steel required.

MISCELLANEOUS MEMORANDA

$5\frac{1}{2}$ yds.=1 rod, 40 rods=1 furlong, 9 furlongs=1 mile.
 $144 \text{ sq. in.}=1 \text{ sq. ft.}$, $9 \text{ sq. ft.}=1 \text{ sq. yd.}$, $30\frac{1}{4} \text{ sq. yds.}=1 \text{ sq. rod.}$
 $100 \text{ sq. rods}=1 \text{ acre}$, $640 \text{ acres}=1 \text{ sq. mile}$, $5,280 \text{ ft.}=1 \text{ mile.}$
 $1,728 \text{ cu. in.}=1 \text{ cu. ft.}$, $128 \text{ cu. ft.}=1 \text{ cord.}$
 $90 \text{ degrees}=1 \text{ right angle}$, $360 \text{ degrees}=1 \text{ circle.}$
Circumference of circle=dia. $\times 3.1416$.
Area of circle=rad. \times rad. $\times 3.1416$.
Volume of cylinder=area of base \times height.
Volume of cone=one-third of area of base \times height.

To find diameter of round rod of equal area with given square bar, multiply side of square by 1.128, or divide diameter of round rod by 1.128 to find side of square bar of equal area, when round bar is given.

Comparison of Northern Yellow Pine Columns with Cast Iron Columns; Breaking Loads in 1,000 Pounds

Description of column	Height		
	8 ft.	10 ft.	12 ft.
6 in. x 6 in. solid yellow pine.	120	115	110
8 in. x 8 in. solid yellow pine.	225	215	210
6 in. dia. round Cast Iron, $\frac{3}{4}$ in. metal.	570	465	375
6 in. x 6 in. Cast Iron, $\frac{3}{4}$ in. metal.	820	685	566

MANCHESTER IRON WORKS, ST. LOUIS

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